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STUDIES IN LIBRARY SCIENCE

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AN INTRODUCTION TO LIBRARY SCIENCE

BY

PIERCE BUTLER

Professor of Bibliographical History
The Graduate Library School
The University of Chicago



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FOREWORD

THE Graduate Library School of the University of Chicago was established in 1926 in response to a desire on the part of many librarians and organizations interested in education for librarianship that a library school should be provided in connection with one of America's great universities which would devote itself to advanced study and investigation in the field of librarianship.

In urging the establishment of such a school, its advocates were impressed with the rapidly increasing resources of American libraries and their consequent growing complexity. They were also convinced of the necessity of providing instruction in accord with the highest standards of modern scholarship in order that the most effective forms of library organization and administration might be insured. The rapid expansion of public, county, school, and special libraries also offered convincing evidence that the relationships of these organizations to society and government were of such a nature as to require consideration as comprehensive and scholarly as

that given to the development and direction of social and economic institutions.

The University of Chicago, in assuming responsibility for the development of such a school, has constantly kept these objectives in mind. Accordingly, the Graduate Library School, established on this basis, has undertaken to realize these objectives through the organization of its curricula, the methods of investigation which it employs, and the correlation of its work with that of other schools and departments of the University which seem to have something of value to contribute to the study of librarianship. The School has also undertaken the publication of the *Library Quarterly* through which members of its staff and student body, librarians, and others may present the results of investigations or record significant developments in the various fields of library interest.

In order to carry this work further, the School herewith begins the publication of a series of studies in Library Science in which will appear from time to time the results of more extensive studies than can appropriately be presented through the pages of the *Library Quarterly*.

The present volume, *An Introduction to Library Science*, is the first of these studies to appear in the series. It has been prepared by Dr.

Pierce Butler, formerly of the staff of the Newberry Library and now Professor of Bibliographical History in the Graduate Library School.

As the title indicates, it is concerned with the consideration of librarianship as a science. It should be pointed out, however, that the title will prove misleading if it is interpreted too literally. The volume is not an elementary handbook which deals with library rules and procedures. On the contrary, through the essays which constitute the volume, Dr. Butler sets forth the essential nature of science as he conceives it, and shows how the problems of the modern library as an important social institution may be studied in accord with its spirit and methods. In this respect it reflects the approach made by the School to librarianship and the attitude assumed by it in the study and investigation of library problems.

That many librarians will not agree that librarianship can properly be studied in this way is to be taken for granted. Differences of opinion on this point have already been expressed and will continue to be. It is the hope of Dr. Butler and of the School, however, that while this diversity of opinion will continue to exist, those who hold such a contrary opinion will accord his presentation a sympathetic hearing. His statement,

springing from his own individual experience and conviction, is presented with such directness and simplicity that whether it wins the sympathetic understanding hoped for or not, it merits thoughtful reading.

LOUIS R. WILSON

March 1, 1933

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INTRODUCTION

THE library has been created by actual necessities in modern civilization. It is now a necessary unit in the social fabric. Culture must transcend the individual for it is essentially a social cumulation of experience whereby the men of each generation possess potentially at least, all that their predecessors have ever learned. Books are one social mechanism for preserving the racial memory and the library one social apparatus for transferring this to the consciousness of living individuals. Any understanding of society must include an explanation of this social element and of its function in communal life. Thus librarianship takes its place among the phenomena to be discussed in any system of social science.

Unlike his colleagues in other fields of social activity the librarian is strangely uninterested in the theoretical aspects of his profession. He seems to possess a unique immunity to that curiosity which elsewhere drives modern man to attempt, somehow, an orientation of his particular labors with the main stream of human life. The

librarian apparently stands alone in the simplicity of his pragmatism: a rationalization of each immediate technical process by itself seems to satisfy his intellectual interest. Indeed any endeavor to generalize these rationalizations into a professional philosophy appears to him, not merely futile, but positively dangerous. He is vividly aware of the precious subjective values which are involved in every contact of an individual with the cultural achievements of humanity. He therefore appears to dread the coming of science because he fears its heartless objectivity. By the standards of pure reason any man is but a tiny unit in the multitude of his kind. The period of his lifetime is only a pulse-beat in the cosmic process. Individuality is confined to the life cycle of the species. Within narrow limits of variation even personality itself is no more than a recurrence of an established type. Science can not penetrate the self-consciousness of emotion for this is intangible and incommunicable: hope, happiness, aspiration, repentance, despair, and devotion are terms void of all external meaning. Yet these, in the last analysis, embrace the ultimate significance of the universe to each living man. For him the cosmos itself has no existence except as he feels it.

In his concern for these emotional values the

librarian has come to conceive his office as a secular priesthood, administering a sacrament of cultural communion to individual souls. At every suggestion that his activity be examined as an objective social phenomenon he draws back in terror because he fears that this can be done only by a sacrifice of all spirituality. He has good reason for his fear. Logic is ruthless and coldblooded. Scientific studies are not usually conducive to the development of broad human sympathy. The scientist by the very narrowness of his interest may become arbitrary, dogmatic, and intolerant of all that he does not understand. He, no less than other men, feels that perverse impulse to deny the existence of what he himself has not experienced. Systematized institutionalism is sometimes harsh to personal sensibilities. The school, the almshouse, the church, and the hospital have each paid a certain price in spiritual quality for whatever assistance it has derived from a scientific treatment of its problems. Yet but few of those who are most interested seem to doubt that the benefit has outweighed the cost or to see any intrinsic incompatibility between a personalization of the individual and a generalization of his type.

So it will be in librarianship. An organic body of scientific knowledge will be built up to ac-

count for the complex activities of this social agency also. The librarian in the future will have at his service precise information where now he has only *ad hoc* hypotheses formulated from the peculiar conditions of his individual experience. Like the teacher, the social worker, and the physician of today, he too may be set free from many of the perplexities which always arise when the busy practitioner lets his thoughts wander to the broader questions of the real efficiency and the ultimate value of what he is doing.

Not every librarian is called to take active part in the synthesis of library science. While a few are pursuing such studies the many must continue to devote their whole strength to the normal functions and growth of the established library system. But it is of the utmost importance that every library worker should have a sympathetic understanding of what is being attempted. Only thus is there any assurance that the resultant science will take into account every phase of librarianship that is amenable to scientific treatment, and only thus will its purely humanistic phases be preserved intact as a part of professional practice.

The following essay is a tract for the times. It is addressed, not to research workers themselves, but to busy practitioners in the hope of winning

their sympathetic understanding of the attempt now under way to establish this necessary library science. To make the exposition complete it has seemed worth while to include a first chapter on the nature of science itself. Whenever librarians gather together it is evident from the course of their discussion that they employ this word "science" in a vast diversity of meanings. Though the somewhat lengthy definition given here may satisfy no one but the author, one may hope that it will establish the sense in which the term is used in the following pages. For similar reasons there is also included a presumably simple and empirical exposition of the fundamental principles of the statistical methods. This too seems to be a matter in which there are almost as many grades of opinion as there are librarians to hold them.

After this excursive first chapter the discussion does not wander so far from the main theme of librarianship. Under the three categories of sociology, psychology and history an attempt is made at a preliminary survey of the more conspicuous phenomena which occur in the field of library activities. Usually there is implied, though it is not always expressed, the corollary that more precise knowledge of what is involved

might be won if each phase were subjected to scientific study.

No better fate can be hoped for what is here written than that it should quickly become obsolete. For many of the matters discussed no precise information is now available. It has therefore been necessary to draw upon personal judgments which in turn are based upon nothing more than the professional experience of one individual. Some things, no doubt, are described falsely and others in distorted proportions. But the state of affairs which has made this unavoidable is bound to pass. With the development of library science we shall come to have definite knowledge where now we must use subjective opinion.

Chapter One

THE NATURE OF SCIENCE

I

THE word "science" is used in many different meanings. Colloquially it often retains its simple, loose significance of knowledge of any kind. At the other extreme, certain scholars limit the term to those precise connotations which it has acquired in their particular studies. Between these limits it would be possible to construct a complete spectrum of usages wherein the word changes its color by imperceptible degrees and yet passes through a whole series of distinctive definitions. But words are less important than ideas. The ambiguity of this word is significant only because it reveals a real difference of opinion about the essential quality of modern thought. To explain this difference of opinion one must go back to the complex of ideas from which the word sprang.

This term entered the modern vocabulary as one result of revolutionary changes of theory in those fields which were once known collectively as "natural philosophy." For a long time the

term had a controversial quality. It served as a war-cry to the embattled radicals; it was taken up and hurled back as an epithet of derision by their conservative adversaries. Though this polemical quality is now almost forgotten the word still carries a strong tinge from the physical studies in which it was born. The scientific mode of thought is too seldom generalized beyond the particular forms which it has assumed for the discussion of mechanistic phenomena. There are still physicists, for example, who ridicule the very idea of a science of comparative religion and deny the possibility of any scientific philology.

Perhaps such protests are eminently reasonable. None the less the meaning of a word is determined by social usage rather than from a logical definition. By social consent the prevailing temper of modern thought is characterized as scientific. Unless this modern temper is not unlike the intellectual modes used by pre-modern cultures it would seem that the term "science" must include all knowledge that is distinctively of a modern character. For an adequate definition of the term one must search out the characteristic qualities of all modern thought rather than the peculiar elements of a particular branch.

It would seem self-evident that modern thought is essentially different from the various

intellectual habits which were current in other periods. Not merely has the content of our knowledge changed, its very texture is something new. Where the mediaeval mind appealed to authority, and the renaissance mind to a sense of values, the modern mind demands an objective realism. Older types persist. There are still men whose thought is essentially mediaeval or humanistic. Perhaps no mind is wholly free, in every phase of its activity, from survivals of incongruous mental habit. Yet modern man, in so far as he is modern minded, does think in modes that are new to the intellectual history of humanity. And to describe these new modes of thought accurately would be, in substance, to define modern science itself.

A significant quality in this thought is an ever-present awareness of its own modernity. A man of today knows that his mental processes are unlike those of even his immediate ancestors. Though usually proud of this originality, in certain moods he is disquieted by the isolation of his generation. Then his inability to think the thoughts of his grandfather is seen as a distressing loss in human sympathy. But this is only a single and an emotional reflex of his manifold sense of intellectual difference from all that has gone before.

Another significant quality in modern thought appears in its epistemology. Whenever the word "science" is used in its colloquial sense, it seems always to embody a conviction that the knowledge so designated is of a particularly valid kind. There is usually an implication of contrast to non-scientific ideas. A modern man, whether he is conscious of it or not, has a definite theory of knowledge in both positive and negative forms. He is thoroughly convinced that opinions drawn by certain processes from certain kinds of evidence are true; he is equally certain that ideas derived by other processes from other kinds of evidence, though they may be true, are not valid. He uses these standards not so much for his own mental processes as to justify his assent to opinions which come to him ready-made. Like his forbears he defers to authority. But for him authority is a purely modern conception. He accepts it only because he believes it to be true. He assumes that its pronouncements are scientifically established before they are promulgated. He accepts their truth only because he presupposes that they have been derived by the same sort of process from the same kind of evidence as he would accept if he had the training and the leisure to establish it for himself. In other words, he believes them to be scientific.

Thus in his most modest confession of ignorance there remains a sense of intellectual self-confidence. Though he may be mentally humble he is never abject.

He is in a large part mistaken in his assumption that all modern knowledge is derived by processes with which he is familiar. In extensive areas of modern thought this is not at all true. But for the present we may pass over this discrepancy to examine in greater detail the processes which he does understand. These will be the elements of scientific thought which have been incorporated in the modern intellectual temper.

II

Modern man is seldom concerned over metaphysical difficulties. His interests are essentially pragmatic. He thinks little about the unbridgeable chasm between a percipient mind and the object of its perception. For him truth seems an absolute conformity between his ideas and external reality. Therefore it is easy for him to assume that all valid knowledge arises from data supplied by direct observation. This is, in truth, the method of the physical sciences which are, metaphysically speaking, purely empirical.

Yet direct observation is but one phase in the process of science. The complete synthesis of

knowledge includes not merely observation but the later phases of explanation and evaluation. It is true that these latter may be, in one sense, no more than generalized observations. Yet their difference in degree is so great that it separates them as distinct mental levels.

The history of scientific instruments bears witness to the large part that observation has played in the development of modern thought. With the invention of each new appliance for extending the range of man's natural senses his mind has acquired a new store of data for rational consideration. Frequently, the evidence thus introduced for the first time, has been revolutionary in its effect. The Copernican theory, the first rift between mediaeval and modern thought, sprang directly from new astronomical observation made possible by Galileo's telescope. Biology split away from the older natural history under the load of cumulative microscopic observations of structural details invisible to the unaided eye. The electroscope, the spectroscope, the polariscope, and the interferometer, by their successive invention, have allowed observation to penetrate further into the structure of the physical universe and each has led to a closer approximation of an adequate understanding of the whole. Applications of the forces thus revealed,

whether in mechanical appliance or through artificial synthesis, tend, by their spectacular qualities, to obscure the fundamentally observational character of modern thought. Yet invention is only a back-wash of science; the main stream is a flood of intellectual curiosity, an urge to peer deeper and deeper into the nature of things.

The history of scientific instruments shows also that the earlier appliances were "scopes" while the later ones are usually "meters." This corresponds with the principle that observation to be scientific, must be quantitative. The crucial question is not so much "what" as "how much." Until the latter query is answered, a scientific investigation can go but a little way. From quantitative data permanent conclusions have been drawn even though further study has revealed that the nature of the phenomenon investigated had, at the time, been completely misapprehended. Gay-Lussac working with crude measuring devices discovered laws of chemical combination which are still accepted as valid although the phlogiston theory in which he apprehended all chemical phenomena is now not only rejected but almost forgotten. Such achievements are possible because the processes of counting, weighing, and measuring are probably the most objective judgments in the whole field

of human observation. Theories of relationship derived from quantitative ratios usually involve the least danger of subjective misunderstanding.

Moreover a scientist always selects the field of his observation. In his eyes not all facts are of equal importance. He does not devote his days to the endless multiplication of his sensual perceptions in the hope that perhaps something new will come to his notice. In one sense the older naturalist did just this. The botanist of the Georgian period, for example, collected, identified, and labeled for his herbarium every kind of plant that he could possibly secure. His highest ambition was to discover an undescribed species which should henceforth bear his name, semi-disguised in Latin. Until this happened, he found satisfaction in his ability to identify at a glance every specimen in his enormous collection. The modern representative of botanical science cares little for this kind of learning. He prides himself on the validity of his method rather than on the extent of his knowledge. Indeed, by the older standards, he would be regarded as an ignorant person. Instead of extending his acquaintance with plants, he more probably concentrates his attention upon a single phase of botanical physiology. He will be more concerned

with general morphology than with the characteristic appearance of a particular species. He has little patience for descriptive details of established fact, and is very seldom a zealous collector. His professional ambition would prefer that his name should be used to designate one new theory than any number of previously unrecorded species. His concern is, first of all, functional significance. He has also a perverse curiosity about the unexplained. To a layman it might sometimes seem that he loves his science more for its shortcomings than for its adequacies. Such a man feels a magnetic attraction to the point where a hypothesis breaks down. The problem that has been solved immediately sinks to a lesser importance. It is the mysterious, the unknown, the inexplicable that wins his attention. The mere description of what is, seems essentially futile, but the discovery of how it works has assumed, for the modern mind, a transcendent importance. Scientific observation is always purposively directed to a particular area selected consciously with reference to this intellectual curiosity.

A fourth characteristic of scientific observation is its progressive exploration of areas imperceptible to the unaided physical senses. Optical instruments bring into the range of vision things

that are otherwise invisible. The electroscope revealed the existence of forces whose existence had previously been unsuspected. In this connection the method of observation through secondary phenomena has become of the utmost utility. The spectroscope and the polariscope by dissecting the light ray are used to reveal the constituent nature of the luminous matter or of the transmitting medium. Invisible lights from the ends of the spectrum are registered by sensitive chemicals. The interferometer though it records only the throb of a dissonance in light vibrations has furnished observations of the utmost importance in mathematical physics. Electrons are utterly invisible both by their ultramicroscopic bulk and by the speed of their movement, yet the liquid paths which they leave in a dry water vapor furnishes reliable data for the study of atomic structure. With each extension of man's powers of sensual perception his knowledge increases because the basis of science is a process of observation. In so far as the intellectual habit of modern man is scientific he is an observer. In popular imagery the scientist is usually a man with a microscope.

Ordinarily when the nature of science is under discussion great stress is laid upon its use of the experiment. This is unfortunate, for it tends to

obscure the real issue. There can be no doubt, of course, that experimental procedure has played, and must always play, a leading part in the historical development of scientific thought. But this is an accident. The experiment is important, not because it is an experiment, but because it furnishes favorable opportunity for accurate observation: disturbing factors are eliminated, instrumental manipulation is simplified, and endless repetitions are possible. But these advantages are only advantages for observation. The experiment is a technique rather than a method. The first phase in modern thought is the accumulation of accurate quantitative data derived solely from objective observation.

But science is more than observation. In its second phase it uses the method of rational explanation. The human mind seeks always for causes. Modern man is like his predecessors in this; he differs from them only in the point to which he directs his attention. He seeks proximate causes where they looked for ultimate origin. His lack of curiosity about the remote beginning of the chain of causality is equaled only by their indifference to the links that are nearest. He feels that he has won a valuable knowledge whenever he has identified the immediate cause of any phenomenon; they disdained such things

as insignificant detail, unworthy of a wise man's attention. He doubts, though he may not deny, that rational explanation can ever do more than trace the series of such links farther and farther back, always approaching but never attaining the ultimate origin in the nature of things; they never questioned the power of the human mind to comprehend the first cause of the universe.

In part this intellectual divergence goes back to a fundamental difference in the idea of causality itself. The pre-modern mind conceived this as an external compulsion: the cause radiated a force, as it were, to which the effect was an external reaction. The modern mind thinks of the same relationship in terms of identity internally transformed. Thus the older habit of thought found a sufficiency of cause in anything commensurate with the effect. Usually, indeed, it assumed an infinite superiority of magnitude in the first element. The modern habit requires an absolute equivalence; a real loss or a real increase by the causal relation has become unthinkable. Absolute creation and absolute entropy are now inconceivable.

The third phase of scientific thought is a process, which, for want of a better term, is here called evaluation. This includes various steps: the orientation of each new idea with those that

were previously established, a revision of old theories wherever the new has rendered this necessary, and finally, a recasting of the total sum. Modern thought is highly elastic. An impact at any point is felt throughout the whole body. Ideas developed to explain specific phenomena in particular fields sometimes gain a currency in remote areas, in a manner quite undreamed of by their originators. The theory of evolution which permeates all modern thought was at first only a hypothesis devised by a biologist to account for the divergence of species.

Pre-modern minds were not so plastic. They lacked completely that organic unity which is so characteristic of the intellectual habit of our own day. In general our predecessors felt no common element through their whole range of knowledge except the logical process itself. They attained no higher generalization than their belief that the syllogism was universally valid. Now and again individuals of extraordinary originality—Aristotle, the elder Pliny, Bacon, Albertus Magnus, and Lull, to name but the best known—have shown a tendency to conceive the whole body of knowledge not merely as an encyclopedia but as a veritable corpus. But such minds were rudimentarily modern before the time. This phase of their thought passed unnoticed, it attained no

currency among their fellows or their spiritual descendants. Not until modern times has knowledge ceased to be a mere conglomeration of individual units and become a unified though a cellular organism.

To sum up then, modern thought as it appears in the physical sciences, works through these phases:

1. Collection of data by observation.
2. Explanation in terms of immediate causality.
3. Evaluation by the process of integration.

Modern physical science is pragmatically satisfactory. It certainly works. Its conspicuous success in the fields where it was first developed inevitably suggested to the students of other types of phenomena that they too might profitably adopt the new method. To do this was not always easy. Where the phenomena were essentially different the attempt at direct transfer often proved futile. Certain scholars in their disappointment then proceeded to adapt their problems to the condition of scientific method rather than to make the obverse modification. As a result today such departments of knowledge as psychology, sociology, and education pass over in silence or dismiss as insoluble what

were formerly regarded as the basic problems in these studies.

In other areas the methods of physical science were generalized before they were adopted so that medicine, philology, and history have been successfully modernized with an enrichment of their scope rather than the opposite. It is not difficult to trace through these studies, as they are now pursued, the various phases of science which constitute the terms of our generalized definition. In history, for example, the development of the techniques of paleography, archaeology, and topography are exactly comparable to the instrumental observations of the physical scientist; higher criticism of documents is a process of quantitative discrimination; and the shift of attention from questions of ultimate causality —divine will, destiny, racial genius, etc.—to those of concrete details of immediate reality continue the parallelism.

Only as science is thus examined through the whole range of its various developments may it be apprehended in its true significance as the characteristic habit of modern intellectual life.

III

Thus far in our effort to define the characteristic scientific qualities of modern thought we

have passed over a wide discrepancy which undoubtedly exists between the actual sources of scientific knowledge and popular conceptions of its origins. The ordinary man of today, even one who passes as exceptionally well-informed, seems to assume that the pronouncements of science are authoritative for him because they have all been derived by mental processes with which he is familiar, and from data which he would be willing to accept. This, as we have already said, is not universally true. Large areas in our present-day scientific knowledge have been attained by logical methods which have not been incorporated in the modern temper. These concern fields which consist of phenomena amenable only to a mathematical analysis.

The ordinary man usually lacks any great talent for mathematical reasoning. One would be rash indeed who ventured to generalize very freely about individual differences in mathematical ability, but the fact itself is patent. Very few persons under our present system of education ever attain a real understanding of more than the simplest forms of such abstract thought. Perhaps almost any normal individual can be brought by skillful teachers to a realistic conception of the quantitative relationships which exist in the elements of the right triangle. In

contrast with this there seem to be but very few who, with the most competent assistance, achieve a similar awareness of reality in anything beyond the most elementary algebraic processes. Without the aid of geometric visualization most minds find it extremely difficult, or utterly impossible, to conceive an interplay of several variables. To generalize in a covalent group of complex series is quite beyond them.

For such persons the validity of one of the more elaborate mathematical processes can be demonstrated only empirically. The solution of simultaneous equations by the method of determinants, for example, can apparently be rationalized in comparatively few minds of any generation. All others may do no more than satisfy themselves experimentally that this method of computation gives solutions that are demonstrably correct. Their acceptance of the process must remain essentially pragmatic. This, of course, will distress an educator but it seems, none the less, an inevitable limitation in the world as it now exists.

Of necessity then, many minds are enormously handicapped when they attempt to understand those parts of modern science whose validity can be established solely by the mathematical theory of probability. Yet there are but few

areas in modern scientific knowledge where this kind of logic does not play some part, and there are many others in which it is exclusively employed. This is inevitable. The world presents innumerable phenomena which are determined by momentary combinations of causes of the utmost complexity.

The theories of probability were first evolved from the dilettante interests of certain mathematicians in the artificial complexities of games of chance. Chance, if it has any rational meaning at all, is the predication of a causality unamenable to practical control; the fall of a coin tossed at random is the ordinary illustration. To call this chance implies no absence of determining causes. If all the factors could be measured exactly—weight, shape, position, velocity, direction, air-resistance, and friction—the flight of the coin and its final position could be predicted with absolute precision. Action at random does not eliminate determinism, it is merely a removal of all control over the determining causes. Obviously the degree of randomness will depend upon the possible range of variations in either the cause or the result. In the game with a single coin only two results are possible. It must fall with either one or the other side uppermost. The element of chance enters in the innumerable va-

riations possible in the mechanical conditions of the toss. The slightest change in any of the many elements may alter the result. In a card game, on the other hand, the mechanics of the shuffle are comparatively simple. Chance comes in from the enormous variety of combinations which may appear in the results of the deal.

The mathematical probability in the first game is quite simple. The outcome of a particular random toss can never be predicted, but our knowledge of the total results of a large number of trials is just as absolute as our certainty that the coin will fall by the force of gravitation. If the play is extended over a long period the occurrence of heads will be approximately equivalent to that of tails.

In a card game the computation becomes more complex. The probability that the first card dealt will be black is exactly equal to that of its being red. There is one chance in four for a spade, one in thirteen for an ace, and one in fifty-two for the ace of spades. A mathematically minded person can see why this last probability is the product of the two preceding. All others who lack the special ability can realize that it is so in this case but the rational generalization eludes their understanding. Without such generalizations realistically conceived, two

errors are almost inevitable; the one will be a failure to attain a sense of real validity; the other an instinctive assumption that a mathematical probability has a meaning for a particular event. One or the other of these misunderstandings will usually be found whenever the layman attempts to refute the validity of statistical methods.

It might easily have seemed to any practical-minded person of their day that the mathematicians who first busied themselves with the problems of artificial games of chance, and discovered laws for their solution, were engaged in meaningless and futile pastimes. Doubtless the mathematicians themselves were very vague about the importance of their findings. Yet it is indisputable that the theories they established have been of enormous benefit to human welfare by extending the power of human thought. No sooner was the mathematical theory well established by *a priori* reasoning than it was extended, with the necessary modifications, to the computation of empirical probabilities. This transformation can perhaps be best expounded by developing a simple illustration. Suppose then we take this question: What is the probability that there will be more men than women on the first street car that passes a certain point? There are

only two sexes. The *a priori* assumption would be that in any random grouping of significant size the sexes will be approximately equal. But if it is known that the city has an excess of female inhabitants the expectation of a preponderance of men will be negative. But, still further, the inquirer discovers that this excess of females is abnormally large among persons of advanced years. This implies more men than women among the patrons of the street car and the probability swings again to the positive side. Next it comes to his attention that the surplus of male infants more than neutralizes the excess of elderly females. He must reverse his findings for a fourth time. In other words, to correct his *a priori* reasoning realistically for a particular field he must have a statistical description of that area.

This illustration is, of course, as void of meaning for practical utility as any problem in a card game. Yet society does make constant and serious use of probabilities not greatly different from this one for the conduct of civilized life. There are practical problems which can be solved only by the most complicated mathematical procedure. Of these probably the most spectacular is the modern system of life insurance.

This is no reckless wager between the company and the individual policy-holder but a meticulous calculation of empirical probability. The only *a priori* certainty is that every one must die some time. The practical problem is to establish from statistical observation the normal expectation for every age in every significant category so that corresponding rates may be determined. The early tables of mortality expectations proved untrustworthy for the purpose, but successive improvements have now brought them to such accuracy that most governments include them in their virtual constituent law; an official actuarian must find the computations of each company operating in the jurisdiction mathematically sound. No insurance company can predict the death of any individual policy-holder, but it can foretell, with uncanny accuracy, how many of a large number will die within any particular period. It cannot name the suicides but it can guess very closely how many there will be. Over a long period of years any losses due to unusually high mortality will be neutralized by the profits which accrue from the cases of abnormal longevity. All this is astounding enough to most men who would be unable to follow, even if they attempted it, the reasoning of the actuarians who solve these problems. Be-

yond their wonder ordinary men can attain only an empirical certainty that these methods are sound. The results must surely be correct for insurance companies carry on their business in spite of mutual competition.

But pure mathematics accomplishes even more than this. It is able at every point to test the empirical observations which furnish data for the computation. It can say how large a sample should be examined to justify a particular calculation. It can compare probabilities themselves by the weight of their significant accuracy. It can eliminate the irrelevant. And in many cases it can detect complexity in what has been regarded as simple and direct causality.

The insurance system is perhaps the most thorough and the most extensive application to human affairs of the mathematical theory of probability and its empirical development through statistics. There are, however, many other problems which are solved only by employment of these methods. Indeed even our much vaunted judgments of common-sense, which are usually attributed to such abstractions as native shrewdness or experience, are essentially nothing else than opinions based on a crude and unconscious system of vaguely statistical observation.

Most human activities when viewed objectively seem to spring from a complexity of causes in momentary combination. However we may describe the fundamental determinants of human conduct—heredity, environment, instinct, or free volition—there can be no doubt that no two individuals, or no two moments in the same individual, present identical combinations of proximate causes. And yet, because men in every possible grouping are born from the same general stock and pass through the same general experience their individual activities do show a preponderance of certain types. For two men to exhibit exactly the same process of physical dissolution at exactly the same age to a day will occur so rarely as to be practically non-existent. In the same way for two men to feel exactly the same impulses to engage in precisely the same activity, and to be able to perform it, is equally improbable. But if it is possible to predict by mathematical reasoning from statistical observation approximately how many of a large number will die of a particular disease in any particular period, it must be equally possible by the same methods to predict with equal accuracy the future occurrence of other significant events in any human activity. Computation of these empirical probabilities will furnish no ground for

foretelling the activity of any particular person. It will, however, enable society at large to predict the desires of large groups of its individual members and to provide scope for the corresponding activities. This will be true of library facilities no less than of those for transportation.

IV

It would seem then that certain qualities might safely be predicted of any new science. Librarianship, in particular, will become scientific only as it conforms in essentials to the habitual methods of thought in the modern temper. Every line in its intellectual synthesis must start from objective phenomena. These will be scrutinized with all the rigor of scientific observation. Elements will be identified and their functions determined. Every possible device will be utilized for the isolation of activities and their quantitative measurements. The intangible will be traced by whatever secondary effects may be perceptible. So far as they are possible, explanations will be formulated in chains of immediate causes. For complexities in which causal control is impracticable quantitative relationships will be established by a statistical analysis of numerical samples. Hypotheses will be devised to account for observed variations and new

methods invented to test their validity. Moreover there will be a continuous mutual exchange of ideas with outside fields of scientific study. Results will be borrowed from the other sciences and the findings in librarianship will be lent in return. The field of the new enterprise will always be regarded as essentially but one aspect of the whole compound of human activity.

In the course of the new departure librarians will win a new outlook. They will transfer their attention from process to function. They will come to strive for accurate understanding just as ardently as they now do for practical efficiency. They will temper their ideals with realistic considerations and discover standards in the nature of their elements rather than assume them as *a priori* values. They will seek for knowledge in typical phenomena instead of in particular occurrences. They will study librarianship rather than single libraries. Their enthusiasm for vocational unanimity will give way to a recognition of real differences in operative levels, but their quest they will still regard as a cooperative enterprise of the whole profession.

V

Science, as everyone knows, has definite limitations. It concerns itself solely with phenom-

ena and may not venture into the realm of metaphysics. The ultimate nature of things and the final realities of their relationships are not amenable to scientific investigation. Even the most optimistic scientist never ventures to predict that his methods will some time solve the residual problems that are the proper material of philosophy. There is thus a sharp boundary to science in the direction of generalized abstraction. On the other side it reaches as immutable a limit whenever a certain degree of particularity is attained. Science has no concern with the unique, nor can it explore subjective emotional values.

The psychic life of man includes spirit as well as intelligence. Indeed for the individual his consciousness of emotional values is probably of a vastly greater significance than is his rational thinking. He needs must interpret every event that touches him in terms of his own personality. Thus every human being creates a whole world of emotional value as his particular counterpart to the objective cosmos. To deny reality to this is as reckless a dogmatism as to pronounce all phenomena illusive in order to posit an absolute idealism. Metaphysicians argue interminably whether or not a waterfall may be said to make any sound if no living ear is present to listen. There can be no question, however, that its

beauty has no real existence outside of the minds of those who feel it. The physical combination is phenomenal, the aesthetic evaluation purely subjective. Qualities of this kind permeate the whole cultural life of man. All of his being, past, present, and future, is bound up with personal, aesthetic, and ethical interests. To eliminate these is to reduce him to a brutish existence.

Since no phase of civilization is more concerned with these spiritual values than literature, it must follow that librarianship will always include extensive areas of major importance which can never become the field of a science. These are matters which by their very nature are essentially humane. Scientific methods may be profitably employed to elucidate their mechanistic elements. For their subjective effects any explanation in terms of equivalent causes must remain utterly unthinkable. A poem, for example, may be studied by the established methods of science for its rhythm, its phonetics, its language, its rhetoric, and its historic development. Yet when the scientist has said his last word, he has not approached even remotely the elusive something which sets this literary composition apart as a unique manifestation of spiritual beauty. Some persons, of course, are completely impatient of any scientific quest even into the

structural elements of poetic form. Others, of more tolerant temperament, find such things illuminating and in no way incompatible with the keenest aesthetic appreciation. If knowing were possible only at the expense of feeling, the price of knowledge would be too great to pay. Actually the coexistence in the same field of the two is more a matter of addition than one of substitution. They are not mutually exclusive.

Since any science concerns itself only with knowledge, library science in particular can embrace only the rational side of the fundamental phenomenon of librarianship which is the transmission of the accumulated experience of society to its individual members through the instrumentality of the book. This transmission has other aspects which can never be apprehended by science. From graphic records any man may come to a knowledge of what other men have known and believed and felt. These records may also reproduce in him the same convictions and feelings themselves. The process of his attainment of knowledge is a problem which may be investigated scientifically, but in the main the reproduction of subjective reactions can not. Here the methods of science sink to secondary importance and serve only as useful tools.

In the following pages the discussion is limited

to library science. No attempt is made to portray in any detail the humanistic side of librarianship. It has therefore seemed necessary to speak of the use of books only as a process of "learning by reading," and of its effect simply as "knowledge." This terminology is intended to emphasize rather than to ignore our failure to take into account here the spiritual elements. Let it be said once for all that their utmost importance for civilized life can not be denied. But because it seems desirable that librarianship no less than education and medicine should profit by becoming scientific without losing anything of its humanistic qualities we have ventured to speak of the former phase alone. The latter is already generally appreciated at its real value.

*

Chapter Two

THE SOCIOLOGICAL PROBLEM

I

SOCIETY probably contributes far more to the publication of a printed book than does the author who composes it. The mechanical process by which the first manuscript is reproduced in many printed copies has been evolved by the cumulative labors of many men through many generations. The apparatus by which the book is actually printed has also required for its fabrication the cooperative effort of countless individuals in dozens of industries. No single mind has ever planned the coordination but from the miner who excavates the ore to the pressman who sets the finished machine in motion there has been an organization of enterprise and achievement which involves the whole social fabric. Society has used for a final communal purpose what single individuals have intended for ends that are immediate and personal. Something different and greater than a mere summation has come into being. The blind and unconscious urge of civilization has done more

than simply to combine and add the total of these units of conscious volition. Society itself has built the printing press.

Where the author working alone might in the course of years make a few copies of his book and circulate them in his immediate circle, his people organized in a society have reproduced and scattered his writing broadcast. But his dependence upon social organization is more complete than this. The language which he uses and the written form in which he records it are not his own inventions. These symbolic sounds and graphic symbols have no meaning except by virtue of social convention. His ideas and the patterns in which he combines them are themselves but seldom more than borrowings from the social group of which he is a member. Though the pen is directed by the writer, it may be said in a very real sense, that usually it can write only what society itself has dictated.

II

This essentially social quality of the book is manifest also in aspects other than its origin. Only the society which creates it can bring into play its manifold potentialities. What memory is to man the graphic record is, in part, to modern society. Memory is a phase necessary to any

mental process and itself involves the whole range of intellectual activities. To record in the mind requires perception, to retain requires the creation of a concept, and to recall usually gives rise to an act of volition animated by desire. If remembering were merely a discharge of stored neural forces the act of remembering would be in effect a re-acting of the things remembered in a reverse order of occurrence. It is selective in so far as it is an act of intelligence.

In the life of an individual, consciousness itself seems to depend upon a sense of temporal persistence built up by the memory. Thought appears to be impossible until the percipient mind attains awareness that it has already been exposed to other perceptions. Personality is a product of cumulative experience, purpose a projection of a past upon the future. Memory, certainly, is prerequisite to any self-directed progress. A seed germinates, a plant sprouts and grows, and, in the course of time, completes the cycle of vegetative life. Apparently, there is no mentality and no consciousness because there is no perception and no memory. Individual plants may vary in the measure of their attainment of botanical *optima*, but their success or failure depends wholly upon conditions externally imposed. There is never a real choice because there

is no cumulation of experience. Futile activities are as persistently repeated as those which minister to survival. To some degree the higher animals all seem to liberate themselves somewhat from this blind coil of circumstance, but man alone has attained any large measure of control. This he has achieved in part because he has a memory and because he is able to learn.

But in society he never has to teach himself from the stark beginnings of any knowledge. By association with his fellows he learns in childhood far more than a whole lifetime of solitude would ever teach him. As a son of society he inherits and enters into full possession of a rich inheritance. This, from the standpoint of society itself, is a duty rather than a privilege. If he is to perform his due function as a member, and contribute positively to the welfare of the group, he must possess the normal knowledge of a man.

In the more primitive or preliterate forms of social organization society may possess the knowledge normal to its status only in the minds of its living members. Though it is still intangible the reality of this store of knowledge cannot be questioned. On the lower levels of civilization it is probably inchoate if the factual content alone is preserved. Where development is more advanced, certain portions of knowledge become

embodied in ordered form and a literature comes into being. As this increases it attains a bulk too great to be retained by the ordinary memory, and persons of special talents gradually assume the rôle of official custodians. At some further point there is a resort to mnemonic devices; rhythm and assonance are introduced, then a tale of knots or beads and finally, graphic symbols. Though our knowledge of the historic evolution of writing is too scanty to allow the assumption that every culture has passed through this last series of phases there is enough scattered evidence to suggest the pattern as a diagrammatic scheme.

The invention of an art of writing is an epochal enlargement of society's ability to increase its knowledge. A graphic record preserves in comparative security even the seldom used; memory can retain only what is frequently repeated. Things written and forgotten can be revived by a new reader; a break in the line of oral tradition is irremediable. Writings can communicate through space and time where the spoken voice becomes inaudible. At every point the artificial memory which was invented in the graphic system has rendered possible an enlargement of the cumulative process far beyond what men otherwise are able to achieve.

Society may thus be said to possess a memory and even a sort of mentality. There is no consciousness in this social pseudo-mind and yet it has functional activities which show a crude analogy to the intellectual processes of the human individual. Community of experience is somewhat akin to a social sensation; literary form, in its widest sense, is roughly equivalent to a social formation of concepts; variety in the choice for use establishes to some degree a social volition; and in the blind urge of society to maintain itself may be found at once a social sense of value and social emotions. All this, of course, may be idle speculation, just as our description of social evolution was, perhaps, a false history. But both may serve at least as metaphors to bring into sharp definition certain elements of the social complex whose reality is indubitable.

II

The existence of a social accumulation of knowledge is of the utmost significance in the relationships which it establishes between society and its single members. From the side of the group a normal selection from the whole must be transmitted to each individual in the interest of the common welfare. Obversely, this involves one aspect of each person's social duty. From

the side of the individual the relationship includes the ability of any member to draw at will upon the communal store for additional knowledge. This to him is purely a matter of his social privilege. Both of these aspects invite a more detailed consideration.

Society's need of initiating, as it were, its younger members into a definite state of knowledge seems to reach back into man's biological past. For the period of infancy and childhood not merely human beings but also the higher animals have apparently evolved a special aptitude for learning. This may wane somewhat with maturity but it is probably never completely lost. The human being, whatever his age, remains always characterized by his teachability.

The whole process of education has long been subjected to close scrutiny and intensive study. It is a field of perennial interest to most men. During recent years educational studies have flourished greatly; they are now being pursued with a special vigor and on more extensive a scale than ever before. This has probably resulted from at least three major causes: scientific methods of thought have been brought to this composite field of phenomena; the findings of such allied sciences as psychology and statistics have become available; and finally, new philo-

sophical ideas of far reaching scope have served as catalytic or fertilizing agents. The layman who observes all this activity will recognize that a great extension of human knowledge has already been effected and that he must look forward expectantly to even greater achievements. At the same time, he will also realize that in so new and enthusiastic a movement there is always a danger of concentration of interest at particular points and a corresponding neglect at others. Educational studies seem at present to be suffering from such a distortion. Apparently more attention might well be paid to the more ultimate purpose of the process.

Education, like most of the other complex functions of human activity, shows four distinct levels of cause and effect. So simple a matter as the teaching of elementary arithmetic runs through all these phases. On the lowest level is the direct effect of any particular technique. A child, let us say, is required to learn the multiplication table. The degree of his success and its cost in effort may be directly measured. Its permanence may also be ascertained not only through his school years but in his later life. Comparative studies may likewise be made of these efficiencies for various procedures and may prove, for example, that teaching him to count

by sevens is more advisable than forcing him to learn by rote the verbal table, "Two times seven is fourteen," etc. Obviously, the considerations here are purely technical.

Above this lies the question of method. This, for the technique of the multiplication table, is the establishment in the student's mind of permanent memory reflexes which will function automatically. If this is accomplished successfully, he will always be able to tell himself that six sevens are forty-two without the need of really knowing it. Such a method necessarily concerns itself not with truth but with correctness according to external standards.

The third level is the effect of education on the individual. This is a matter of enormous significance in the personal welfare of each member of society. A man's social status and his vocational occupations are, in a large measure, limited, facilitated and influenced by his educational attainments. Unless he can learn the elementary arithmetic which is mastered by other pupils he suffers even as a child social degradation. What is even more serious he is denied admission to all more advanced studies. In adult life his ignorance of what is commonly known is bound to create in him a consciousness of belonging to the intellectual proletariat. If he is unable

to perform simple multiplication, he cannot become a clerk, a bookkeeper, or a teacher, though he may turn to industrial labor. But even there he can never be promoted to fill administrative positions.

On the topmost level is the effect of education on society itself. It is self-evident that no advanced state of civilization can be achieved or maintain itself unless the necessary proportion of each generation are well versed in the corresponding knowledge. The whole economic organization of modern life, for example, depends upon the ability of most men to manipulate simple numbers. Moreover, an advanced society, such as ours, requires that a few members in each generation can perform the most abstruse calculations. Probably there is no social import for the permanence of a culture in the general intellectual quality of these operations. It makes no difference in their social function whether mariners reduce their astronomical observations by rule of thumb or by their understanding of spherical trigonometry. Only because it will minister to future progress can society prefer an apprehension of truth to mere acquaintance with factual realities. Knowledge for its own sake has no aesthetic or ethical significance on the scale of social values. The cost and results of educa-

tion are the primary interests which society must consider. If the memorizing of the multiplication table enables most pupils to multiply, while another technique, pedagogically more sound, will produce only a few competent arithmeticians, but leave the mass of pupils incapable of the calculation, there is no doubt which process must be socially preferred. Only because of the practical impossibility of distinguishing between the academic and the empirical is a progressive civilization ever interested in theoretical knowledge.

At the same time society is vastly concerned with the qualitative content of the educational process. It requires that each of its members shall acquire so much of the common knowledge as is the basis of their cooperative life. Further than this each generation must take active possession of every part of the cumulated learning that has any possible utilitarian value. Under modern conditions this store has become so great that no single individual can grasp it all. Of necessity there has been a division of the labor but the total effort must be complete. In a large industrial community there is as real a need for a few botanists and linguists as there is for many engineers. When a civilization begins to

forget things still useful and once known it is evidently retrogressive.

Modern educational science seems to show a definite tendency in its enthusiasm over technique and method to slight the welfare of the individual and to ignore the interests of society. Despite its great achievements in the first two fields, there are probably good reasons for considering the modern school less efficient in the other matters than the older system which it has supplanted. This is not to say, as many do, that we should turn back to the older program. That has proved itself completely obsolete. It is even less adapted to modern needs than the substitutes which have been hastily devised. But the fact remains that the old time graduates were apparently better prepared for successful careers and active participation in the affairs of premodern society than are corresponding individuals of today. The older academic temper was preeminently humanistic but so was the social fabric itself before the rise of modern science and industrialism. In those days when a youth left college he was already a man because he possessed in full measure the necessary knowledge for adult life. In our day he is still a boy and for a similar reason. This is not because he or his school has deteriorated. There has been a vio-

lent change in the intellectual conditions of society itself. The task of education has become enormously magnified. Cumulative knowledge has far outrun the content of the scholastic curriculum. There was a time when the two were almost identical. The scope of education must now be correspondingly enlarged to embrace the whole process whereby an individual member of society draws upon the compounded communal store of intellectual capital. In this the library takes on a new significance and becomes only less important than the school.

IV

Books are mere records of knowledge. Their contents are of varied nature. The graphic text may record a factual observation, an opinion of its meaning, or a description of the emotion which it created in the writer. The book is not the fact, the opinion, or the feeling itself, it is only the record of the author's knowledge that he had thus perceived and thought and felt. In its millions of such records written by millions of different individuals through centuries of its life society possesses an almost complete account of its own knowledge. In the mass of these books society has, as it were, constructed a material

apparatus of memory that will outlive many generations of its members.

This is at once an effect of social causes and itself an efficient cause of new social phenomena. Any member of society now has open access to the whole accumulated knowledge of his people. By opening a book he can read in an hour more than was often taught him in days of classroom instruction. He can choose the subject of his study and if he wishes, advance to the final conclusions without attempting either to master the elements or to follow the course of the demonstration. Even more than this he can learn matters that are not included in any scholastic curriculum. Through the mechanism of the printed page he can transfer to his mind a transcript of any portion of the social memory. At any instant he can establish a school for himself, in whatever studies he will, and be dependent only on his own eyes for a teacher.

This is a new social agency which may be used in all sorts of fashions. By the standards of society itself some of these activities are good, some neutral, and some positively evil, but they must be known before they can be evaluated. This is a field in which there has been surprisingly little exploration, though its general orientation is obvious. The process of learning is the same

whether it is performed through voluntary reading or under the compulsions of a school discipline. There are, we have found, four distinct levels in the results of learning. To scrutinize the effects of reading in each of these phases would be to raise numerous questions for which, apparently, no answers are as yet available. For our present purpose we need attempt no more than to cite a few of these problems as examples.

As pure technique there are evidently many types of reading which vary not only with the subject but also with the forms of its treatment. Usually, for any particular subject may be found the complete range from textbook, systematic treatise, and journalistic summary to a purely literary handling. One can read of paleontology, for example, in a slender school manual or the thick quarto of the specialist; it also appears in museum leaflets, in Doyle's novel, and in Arnold's poetry. It is a problem of method to determine whether much rapid reading or a little done closely will leave the greater result. In the same field one asks if abstract ideas are more easily obtained from books which discuss the specific or from those that formulate general conclusions. For the effect of reading on the individual one clearly must discriminate between kinds of reading and kinds of individuals. But

there must be some point where a printer will be less benefited by continuing to read about typography than he will to explore the elements of biology. Moreover there must be some correspondence between this point and the one that is critical in a similar way though in different terms for a banker. For the final aspect, the effect of reading on society, we must again face the question of kind. As typical problems in this field we may cite such questions as these: Does an excessive reading of inferior fiction increase the number of delinquents? Does it do this by blurring the mental distinction between reality and the imaginary? Do juvenile books tend to retard an intellectual adolescence? Does the leisure hour study of vocational theory contribute more to occupational efficiency than pure recreation? To all of these problems, as we have said, there are as yet available no answers founded on factual bases. Anyone is free to guess what these answers may be from *a priori* assumptions but here, as so often, one guess is quite as good as another.

Society at large is concerned with learning by reading whenever any large number of its members are affected by this process or whenever a few influential persons are profoundly affected. Indirectly at least, the effect of a technique, the

effect of a method, and the effect on an individual may have a significance similar to that of the direct effects on society which we have just endeavored to describe. But all four of these phases are evidently concerned with the results produced by reading itself. In a broader aspect this activity may also be appraised by the degree to which it activates in society at any one time the whole range of significant knowledge. The record of experience which is contained in books is inert material. Society can apprehend it only when it is transferred to the minds of living persons. It is therefore important for the whole body social that at any moment every significant phase of the total accumulated experience shall be actively known in some minds at least. Otherwise society cannot always conduct its communal life on the highest level which is actually practicable. Learning by reading is in a way an intellectual metabolism that must go on ceaselessly if the normal social state of well-being is to be maintained.

This process, of course, is not effectively performed unless it takes place at the proper points. The knowledge that comes from reading has no social significance unless it is acquired by such persons as can inject it into the vital stream of communal life. For an American banker to

know Sanskrit may be a source of great satisfaction to himself and to his friends, but it will probably add nothing to his vocational skill or to his more general qualifications as a citizen. For the teacher of language teachers it is, however, almost essential if he is to impart a valid understanding of the fundamentals of comparative philology. On the other hand, the welfare of the whole community may be indirectly affected if this same banker possesses a general knowledge of Hindu religion; this might, under conceivable circumstances, tend to liberalize his mind and determine where the weight of his influence will be placed when the people are in danger of making a short-sighted decision of permanent consequences.

It is apparent then that reading is an important element in the modern social fabric, but it is equally apparent that neither the nature of this element nor its rational control are to be defined from speculative consideration. These must be studied in their setting as social phenomena by the processes of scientific method which have elsewhere proved themselves valid.

V

The dangers of social reform undertaken for such speculative considerations are revealed in

the history of our schools. Here it has repeatedly been demonstrated that a social institution may hold tenaciously to a program long after society has so transformed itself as to render that program socially ineffective. Because the spirit of institutionalism is always conservative some lag in adjustment is perhaps unavoidable. But when this delay passes reasonable bounds the accumulated forces of popular resentment often lead to an over-violent reaction. In recent decades this has happened more than once in our educational system. Through the excessive zeal of advocates for modernization, short-cuts to reform have forced upon students new subjects which are as irrelevant to their life problems as were the matters which have been displaced. The widespread substitution of Spanish studies for Latin is an example to this point. Hundreds of thousands of students have been required to dabble in the language of the southern Americas, though few of them can ever make use of it, and it has not even the virtue of giving them a deeper insight into the spirit of their own tongue.

No one can possibly maintain that the almost universal requirement of Latin should have been continued. This study had been logical and necessary when the high school course was exclusively a preparation for college and the col-

lege exclusively the old-fashioned humanistic academy. But both institutions had altered their characters; the first is now very definitely a continuation course in the common school system, and the college is a professional school for teachers, business men, and technicians, or else a preparatory school for university studies. A change in the lower curriculum was inevitable, but it was exceedingly unfortunate that this change for so long was a mere substitution for one useless study of another equally useless so far as the actual needs of many of the students are concerned. Only in recent years have educators approached their problem of curriculum planning with a sound evaluation of actual vocational needs and a due sense of pedagogical practicability. These have been established through an analysis of the actual community needs in modern society.

Our library system in many respects is intensely conservative. One may suspect that it has retained items in its program which should be revised if this institution also is to be brought into harmony with the real needs of contemporary society. Librarianship will therefore do well if it avoids a repetition of the mistakes which have been made in education. If, for example, the board of a public library, on discovering that

Victorian poetry is no longer widely read, were to cease purchasing books of this class and spend the money, instead, on chemical monographs because of a vague and unrationalized conviction that these are practical and modern, it might be performing as futile a substitution as that of Spanish for Latin has been in certain schools. In the library no less than in the school curriculum selection with reference to the kind of people served is the sole criterion of social efficiency. A continuous sociological study of group characteristics and activities is the only safe guide to a successful reformation of either institution. Yet the practical interpretation of this study, that is, the decision whether or not an institution should attempt to meet any particular interest or activity thus disclosed, must rest upon a subjective judgment dictated solely by professional wisdom. Science cannot distinguish good and bad as universal human values.

*

Chapter Three

THE PSYCHOLOGICAL PROBLEM

I

ANY manifestation of intellectual activity in a social body is produced as an aggregation of mental activities at work in a number of single individuals. Though books in the mass are a material formation which may be suggestively likened to a neural apparatus for social memory, there is no real mentality in society itself, independent of that of its constituent members. We may speak of social emotion, social judgment, social volition, and even of social psychology as a whole, but the phenomena thus designated can be understood only as cumulations of the corresponding intellectual activities in a number of individuals. No doubt these cumulations diverge somewhat from simple addition totals because of the modifying influences of what might be called self-induced psychological currents.

Learning through reading is like all other intellectual activities. The first step toward understanding its presence in a community of per-

sons is to study it as it occurs in the individual. Here it is clearly a psychological activity of the highest complexity. Structurally it seems to consist of a parallel exercise of sensual perception and of reflex memory. These elements in combination give rise, somehow, to intellectual concepts, which, in their final effect on the consciousness, are almost equivalent to abstract observation. An individual derives his ability to perform this solely from social influences. The reading chain—graphic symbols, words, grammatical combination, ideas—has no meaning apart from communal conventions. But in modern culture these conventions have been developed so intensively that when a man attempts to think precisely on difficult matters he is quite certain to write to himself. His mental habits make it easier for him to read a graphic record of his thoughts than it is to think them. When a group of men confer on serious subjects today, they usually begin with a written statement, and attempt little more in their oral conversation than a running commentary. If a decision is made, they are quite sure to reduce it to writing.

Many factors contribute to this state of affairs. In the first place books and written exercises are extensively used throughout our educational system. This inevitably tends to pro-

duce an unrationalized feeling that what is written is particularly true and particularly authoritative. Moreover with the progressive adoption of the habits of science in modern thought there has been a growing respect for factual accuracy and a growing dislike for subjective colorations. Speech that is oratorically forceful is usually discounted even below its rational value. Our distaste for any skill in elocution runs so far that mere fluency of speech is often regarded as symptomatic of superficiality of thought. Conversation is a lost art. Still a third contributory element seems to be our deep-seated conviction that our minds never grasp absolute truth. Our knowledge, we believe, is only an approximation to reality; with successive corrections it may come to closer and closer conformity but can never attain perfect identity. We therefore feel that what is spoken is lacking in a necessary precision of expression. What is written, on the contrary, we assume has been more than once reconsidered and reformulated. In the main we therefore prefer reading and writing to most other forms of intellectual activity.

II

But mere preference will never assure actual performance. Before a man can act he must will

and before he can will he must desire. No knowledge can produce action until it is animated by an emotional element. The combination of interest and volition is ordinarily described as personal motive. For an individual to perform any purposeful deed he must want to do it strongly enough to overcome the clog of inertia and often his contradictory desires as well. This is true from the simplest act to the most complicated achievement. If a man is to raise his window, he must not only intend to improve the air of his room by ventilation but he must also feel more concern for his continued well-being than he does for his undisturbed comfort. Ordinarily to choose to do one thing we must also choose not to do another.

III

When we turn back to our discussion of the particular activity of reading we see that the problem of motive involves many subordinate questions of the utmost importance. This is an activity which can be performed only by a deliberate choice not to do anything else for the time being. There are many interests which can be pursued even in the course of a normal vocational routine. Even a fondness for what are or-

dinarily games may be indulged if the player will turn teacher or professional contestant. A passion for the wilderness can be satisfied in many gainful occupations; one may turn trapper, prospector, or guide. The collector may collect for a museum. A student may qualify as a research worker. But no salary is ever paid for mere reading. Even a librarian, contrary to popular belief, has duties of a different nature which he must perform. To read requires an expenditure of time and during that time a complete absence of all other activity.

Moreover normal reading is a solitary deed. Two readers in the same room are lost to each other. In a sense they are anti-social. This contradicts all those habits of sociability which are so deeply ingrained as to be almost instinctive. For some people reading is impossible because they cannot even momentarily shut themselves away in a book. Their minds fly back to their fellows even when physically they are alone. If they force their attention, they suffer a nervous fatigue that is more exhausting than violent muscular activity. Thus in spite of our rational preference for reading to other forms of intellectual activity we may assume that it will actually be performed only when a very strong motive

exists to produce it. Though we have generally a strong inclination to read we have also other propensities which, unless they are overcome by vigorous desires, will inevitably tend to neutralize it, or at least to retard its action.

The motive to read must be of sufficient intensity to overcome rival motives if it is to be realized in actual performance. Here, as in most matters which concern human conduct, habit formations play an important part. A person who has already devoted some time to reading finds it easier to read again than does one who is not so accustomed. A setting and a routine of daily life which includes periods of leisure and privacy with an access to books favors the action. Association with people having the habit gives rise to an impulse toward imitation. In a similar way individuals are strongly influenced in this direction by the common opinion of their fellows: in some social groups reading is accepted as a natural manifestation of normal intelligence, in others as an idle, perverse, and unsocial abnormality. Inevitably personal habit and social environment are among the conditions which determine whether the psychological urge to read becomes action or whether it remains merely potential.

IV

Beyond these questions of sufficient intensity of motive and its determining causes there are numerous variations in kind. The impulse to read is not always the same. Here, it would seem that to examine only a resultant behavior is to confuse things which really have nothing in common. A superficial examination of a number of readers, or even of one reader at different times, will reveal a variety of actions that are substantially different. In the coarsest gradation of these motives one will distinguish from the first at least three types according as the desire is for information, for aesthetic appreciation, or for direct pleasure.

Of these three the simplest, perhaps, is a thirst for information. The reader strives to transfer to his own mind certain portions of established knowledge. His state of mind as he approaches the task may vary through a wide range of possibilities. His real purpose may be remote instead of immediate. In this case he may actually lack any personal interest in what he is reading and pursue it only because he regards the knowledge thus obtainable as prerequisite to what he does desire. If this is so his approach will be as to an unpleasant duty. He may dislike the process of reading intensely and yet be so avid for what he

believes it will bring that he goes on with a certain enthusiasm. Or perhaps he plods slowly as if bearing a burden. Or, on the contrary, his desire for information may spring directly from intense intellectual curiosity. Each page as he turns it is then like food to one who is hungry, pleasurable because it is satisfying rather than because it is really delightful.

Whatever the emotional attitude and personal interest may be, it is clear that the animating motive, a desire for knowledge, must determine the character of the process if it is to fulfill this desire. This reader's aim is to transfer knowledge from the book to his own mind. To do this successfully will require a technique adapted to the particular purpose. He must distinguish between mere memorizing and complete apprehension. If the knowledge he seeks is mere factual information, his endeavor is to obtain from his book the same effect as if he had originally observed it. If he desires knowledge of values, he strives to attain the same results as if he had established these standards. If it is a knowledge of feelings, his efforts must be bent to an artificial construction of the final state which would result if he had once felt them. In any case such a reader desires to derive from a record of human experience the equivalent of having experienced

it. Through the reading of history he endeavors to know what he would know if he had been omnisciently present while the events were enacting. In books of science he projects himself, as it were, to unknown laboratories and becomes the unseen companion of a whole multitude of scientists. He perceives through the senses and conceives through the intelligence of strangers, whether they are dead or still living. If he reads of opinion he can peer almost magically into the rational consciousness of other men to weigh arguments, to balance hypotheses, to define categories, and to build up intellectual judgments. If he seeks a knowledge of feelings, he can turn to poetry itself to learn its rational content or to literary criticism of it for a description of the subjective reactions produced in the soul of his proxy. Each book was once a man, some of them whole generations. In its pages remain the knowledge that is distilled from human experience.

In any case the vividness of the reader's knowledge will depend on the efficiency of the technique he has chosen no less than upon his skill in its operation. This must be measured by the clarity of his resultant knowledge and the depth in which it is apprehended. Various types of reading might be appraised for either effect.

The reader who is animated as he turns to his books by a desire for pleasure must very evidently be in a state of mind that is utterly different from that of the seeker for information. In one aspect at least, his motive is simple because it is always direct. The pleasure he seeks is immediate. He never must force himself to unpleasant tasks as a means to the end he desires. Unless his reading is pleasurable in itself it would be folly to pursue it. The motive for his behavior will always be patent, direct, and uncomplicated. But in another aspect it will vary widely according to the kind of pleasure he seeks. Here may be distinguished four different types: aesthetic appreciation, quasi-experience, release, and occupation.

Reading for the pleasure of aesthetic appreciation is probably much rarer than most of us would care to admit. Literature is seldom pure art except for the artist who creates it. Not many persons possess a faculty for the re-creative reading of an artistic verbal composition. Literature must use as its medium words which stand for rational ideas just as painting and sculpture must work with representations of material objects. The minds of most readers are held captive by the intellectual meaning of what is written just as the consciousness of most observers

of a picture is bogged in the objects portrayed. Music is more fortunate; even the poorest listener cannot be distracted by any rational content in the structural elements. Thus it is natural that for every satisfied lover of music in any community there should be dozens of baffled lookers at fine pictures and hundreds of futile readers of great books. So obvious a thing as literary style seems to lie beyond the comprehension of vast numbers of habitual bookmen. It is a thing that every one talks about, but very few are personally aware of its existence. But, after all, the literary transmission of feeling involves purely subjective reactions and so it must be excluded from our present discussion which is concerned only with the questions of science.

Reading for the pleasure derived from quasi-experience is as common as aesthetic reading is rare. It is practiced by all sorts of people in all sorts of ways. Usually in our day reading of this kind means the reading of prose fiction. The act in its most general character seems to involve an imaginary projection of the reader as an omniscient and unseen spectator among interesting people while interesting events occur. Obviously the things thus found interesting will depend upon the personality of the reader. To some

people novels portraying subtleties of character are deadly dull, to others a detective story or a tale of adventure at sea is equally repugnant. The possibilities of variation are enormous but in every case actual reading will be determined by actual interest. It might even be possible to define a person's general attitude by the quality of the fiction that he finds interesting. Certainly a study of the romance types that are popular at various periods can be used as an index of changes in the dominant mood of society. Similarly a prevailing preference in novel reading must be highly significant of the psychic pattern of any particular group in society.

Novel reading, however, is not the only manifestation of this quest for direct pleasure. Almost any book might conceivably be used for the purpose. Popular volumes of travel and history seem in particular to furnish a substitute for actual adventure. A vivid narrative of arctic exploration, for example, apparently leaves in a sympathetic reader's mind a semi-illusion that sometime he himself has engaged triumphantly in this titantic struggle against nature, and has come safely home. In a similar manner the essay is to some readers an intellectual adventure by proxy in strange realms of thought; to another it gives the same satisfaction as would a

lucid and forceful presentation of his own point of view if he had expounded it for himself.

The third type of reading for pleasure is that which is performed to win a release from reality. Here the motive is concerned not so much with what is read as with the forgetfulness which it produces of all other matters. There need be no permanent distaste for what is to be temporarily forgotten. One may simply be tired of it for the moment. Books may often be used to extract from fatigue its emotional reactions and to reduce it to mere physical weariness. Many people turn to reading as others turn to card-playing, in order to divert the stream of their mental activity to quieter channels. Some persons become so habituated to the routine that without such diversion normal repose is impossible. Where books are used for this purpose their content is of secondary importance. Nevertheless they must be of such nature as to arouse genuine interest. At the same time the degree of that interest must not exceed certain limits; if the book is too stimulating, it may increase rather than lessen fatigue; if it is too dull, it cannot hold the attention. Reading for its soporific power may seem but a trifling matter. Yet there is apparently a strange potency of mental effect in the process for some people. To these the

things thus read in a passive state seem to enter more deeply into the mind than they will by conscious study. This perhaps will explain the astonishing depth of learning that is occasionally seen in a man whose time is apparently only too brief for the multitude of his engrossing duties. He may not read much but he selects well and retains what he does read for diversion.

It is not always easy to distinguish between reading for diversion and reading as a mere pastime, yet there seems to be a real difference between the two. The first always shows some positive interest in what is read. The second may lack this completely. A pure example of reading to fill a vacant interlude is the storm-bound traveler who in the absence of any other literature, peruses the village telephone directory until he knows it almost by heart. It is highly significant that even this idle mental activity does for the moment banish his sense of boredom. Perhaps something of the same sort enters into much of the vacant-hour reading of newspapers and other ephemeral matter that is practiced so assiduously on the street cars and suburban trains of any large city. The habit once established is carried not merely to the office and the restaurant but even back to the home. In solitary lodgings, workers released

from their duties, and in the daily hermitage of their homes, lonely house-wives consume a fabulous mileage of printed paper only because they find no other outlet for their impulse to be doing something.

V

All of these impulses seem to be perfectly normal. Any one of them, however, may appear in abnormal form in an unbalanced mentality and partake of the morbid character of the brain that conceives it. Not uncommonly a person who is obsessed by a sense of mental inferiority feels an internal compulsion to study in the very field where he imagines himself to be weakest. If he lacks persistence he may satisfy his craving with mere preparations and grandiose programs. If he has a little more industry, he may acquire a showy smattering which he tries to pass for genuine learning. A reader of this type is always alert for information that is unusual because he assumes it is therefore recondite. In contrast to these a third type of the inferiority motive may lead a person of real talent to put forth a genuine effort and accomplish superlative results. Here the abnormality consists only of the morbid subjective reactions of the unhappy human being who feels them; so far as his behavior goes he is perfectly normal.

There is variation also in the kind of an audience that the victim endeavors to impress. If it is the world at large the subject will strive to play his part with as many persons as possible. For this ostentatious preparations and a glib vocabulary will generally prove sufficient. In other cases the self-distrusting person cares about the opinion of only one individual whose momentary disapproval has inspired a permanent resentment. In almost any circle of society may be found at least one representative of this mental aberration by which a whole life is prescribed by a secret hatred and one-sided enmity. Here the craving for learning that will impress requires a deeper substantiality. Superficial pretense, it is felt, will not be enough for a spectacular triumph. But this mental attitude lacks all fundamental sincerity. Knowledge is sought, not for its intrinsic value but only to serve as a means to an accidental and personal utility. This is not so when the audience to be won over is the victim himself. Here each actual accomplishment is scrutinized by a judge more severe than normal circumstances require. A man who is hag-ridden by self-distrust finds it difficult to appraise his attainments at anything approaching their real value. He is urged by a sharper spur than the most determined normal ambition.

Sometimes, however, the psychologically abnormal desire for information springs from pure megalomania. This seems usually the case when the quest is directed toward the discovery of rational evidence to corroborate an irrational belief. There are not a few men and women who pass as ardent seekers for knowledge though, in reality, they are only self-deluded. Their mental aberrations have given rise to obstinate theories; their lives are devoted to a futile search for demonstrative proofs of weird religious, economic or political dogmas. Though they are confident of their possession of final truth, unbelievers require evidence. This is therefore sought, but only for its propaganda value.

Reading motives other than the desire for information may be equally morbid. In some forms they are downright vicious. Here must be classed any engrossing delight in the literary dalliance with pornography, crime, and antisocial unconventionality. In a similar fashion a use of books for diversion and pastime may sometimes be the weakling's flight from reality. In a world of make-believe he divests himself of all responsibility.

VI

The psychological motive behind each type of reading is unique and distinctive. Yet it is prob-

able that no one motive is ever persistent. A reader seems to slip easily from one to another. Indeed, it is perfectly conceivable that he should pass through the whole gamut at one sitting; though he begins with the simple desire to fill a vacant period he may find what he reads first diverting and then positively pleasurable, and end up in a conscious effort to acquire reliable knowledge. The important thing to be observed is that not all reading can be lumped together as a single and homogeneous behavior activity. Without recognition of the variety of motives there can be no just discrimination between the different origins of actual performance. No one actually reads merely because he desires at the moment information, pleasure, diversion, or occupation. Any one of these needs may be satisfied in other ways. Before a person will use a book for the purpose he must have, not merely a possible access to literature, but a psychological impulse in that direction. The factors that give rise to the latter must clearly be of the utmost importance in any scientific study of reading. It is likewise very probable that they will differ according to the nature of the motive itself.

Given, for example, a desire to read for information, held in a form strong enough to over-

come antagonistic desires which would lead to other activities, there must also be present, before any actual reading will be done, a conscious knowledge of the particular kind of information desired and a conviction that it can be acquired from the proper books. The presence of the last two factors in any particular person can be explained only by his intellectual history. His experience must introduce these two elements. But in so far as that experience has depended upon social conditions it can probably be generalized and serve as a type of what must occur frequently and in many individuals. In its simplest form this desire for a particular kind of information may often be a residual effect from the school. As years pass most people come sometime to deplore their ignorance of what they were taught in the classroom. It may be that they have forgotten things which they once knew, or it may be that they were negligent and never really learned them. In either case the regret may inspire a desire to go back and make good the shortcoming. Here acquaintance with the subject for study will have been established by a certain phase of the individual's experience. This will also explain any desire for a subject study which was known by its presence in the school curriculum even though the person who

now feels the desire to pursue it was unable to reach that level. A third type of this kind of desire will be one which is parallel to some study actually pursued. It is easy to understand how, for example, a person who has been taught in a classroom something of British history should feel a wish to gain for himself a similar knowledge of any other particular nation. In every one of these cases the necessary knowledge of the general subject has been gained in the school. This is also true whenever the primary impulse is to study ramifications of a subject which were omitted from the curriculum of the formal educational system, even though it was studied in general outline. Here again the knowledge which determines the special line taken by a general desire for information has been acquired through an institutional contact of the individual with his society. Of necessity wherever this contact has been limited to the elementary grades there will be no general acquaintance with a wide range of subjects carried over into the intellectual outlook of the adult years.

Vocational activity is another source of subject interest and knowledge. Normal curiosity will awaken in many workmen the desire to know more about what they are doing. Normal ambition will take notice that promotion is often

dependent upon intellectual fitness. And finally, normal envy of the higher social and personal status of the trained expert will suggest an attempt to emulate his probable studies. In a person motivated to reading by any one of these impulses his vocational knowledge of the subject in which he desires to study may or may not be an adequate guide. If he turns to expositions of technical processes in the expectation of enhancing his skill he may easily be disappointed; literary descriptions of complicated manipulation are not always clear, and, indeed, the practitioner may possibly know more than any book can teach him. If this is so, his attempt at study may only strengthen his propensity to undervalue the importance of theory; usually it is far from easy for a practical-minded person to understand the significance of basic knowledge. A mechanic, for example, is almost always impatient of theoretical geometry just as a bookkeeper disdains economic history. But vocational knowledge may stimulate successful reading when the interest is turned to subjects which run parallel to what the worker is doing, or those which ramify from it. A dry-goods salesman's desire to know about the fabrication of textiles or about the people who produce them will often lead to a long course of persistent reading. Vo-

cational knowledge must also be considered the efficient motive in every attempt to acquire information from books for immediate application in an occupational process. When a writer of advertisements, for example, reads up on the ware he is exploiting, the book that he uses is as simply a tool of his trade as is the saw to a carpenter.

Akin to vocational interest, but unlike it in many respects, is the search for information on a particular subject that originates from casual experience. In the main such desires seem to be inspired more often by institutional contacts than by intercourse with separate individuals. The church, the literary society, and the political meeting still seem to account for a noticeably large part of the personal efforts to gain information in matters of interest remote from daily life. Quite aside from such organizations, however, every one is continually bombarded by a wide variety of stimulants to subject interests in the current output of the press. Not only the force of such a stimulus but its nature will depend in part on the kind of publication in which it occurs. Many books refer incidentally to various secondary subjects in such a way as to whet the reader's curiosity to know more about them. By such a channel it is conceivable that a person

might make a chance acquaintance with almost any subject in the whole range of human knowledge. In actual practice, however, it would seem that comparatively few readers acquire their interest in a particular subject from the books they have already used. This is probably not true for newspapers. Not merely the text but even the advertisements teem with references to all sorts of topics which, by the limitations of journalistic treatment cannot be explained. This renders them the more potent as stimulants of permanent curiosity. A comparison between the topics deemed most interesting by a large number of non-book-reading people and those most emphasized in the ordinary newspaper would probably show a close conformity. Whether this is effect or cause would be an open question. On the one side it might be argued that the newspaper creates these interests; on the other that it merely conforms to popular demand. But one may wonder, at times, how much of the journalists' positive statements of what the public desires, are based upon actual knowledge, and how much upon a dogmatic tradition. The contempt for popular intelligence usually manifested in private by a veteran newspaper man, like the cynicism of the experienced theatrical manager, does not always inspire any great confidence in

the quality of his opinion where the masses are concerned. Perhaps a careful study of the topics emphasized in the text, and those which obtain publicity in advertisements, in comparison with the commoner reading interests of people in general, might prove very illuminating.

Outside of the newspaper there is an enormous mass of literature published in periodical journals. Some of these are really newspapers except for their physical form and their lesser frequency of issue. Most of them, however, are really magazines. The general type here is a miscellany of longer pieces than would appear in a newspaper. Moreover each number deals with comparatively fewer topics. The editorial selection of the matters discussed is always an attempt to meet the reading interests of a particular group in society. The conscious purpose of a reader when he turns to a new issue of such a periodical will probably be motivated by one of two definite impulses. He is either attracted by one or more of the items which appear in the contents, or else he believes that a number of this particular journal is quite certain to contain things that will interest him, because he knows from past experience or by reputation the general trend of its editorial selection. At the same time there can be no doubt that in many in-

stances it will bring him to read with interest, subjects with which he had no previous acquaintance.

By the same general process an immediate reading interest in a new topic may be created through various other agencies. The subscription book-club, for example, in its actual working might be regarded as only a modification of the periodical magazine system. Its only peculiarity is that each issue consists of a single complete book instead of a miscellany of papers but at the end of the year the list of topics handled will not differ greatly from those in one or two numbers of a monthly journal working in the same general field. The patron still puts himself in the hands of an editor so far as his choice of reading subjects is conceived. In one sense the same sort of thing occurs whenever a would-be reader approaches a selection of books arranged by a book-seller or librarian to strengthen or to create a subject interest in his patron. Even here, one might say, there has been an exercise of editorial judgment, and a possible appeal to an interest that had not previously existed.

VII

The last phase of our psychological problem is a question of the effect of reading on the mental

life of the reader. This, however, is so obscure that any attempt to analyze its complexities on the basis of general observation alone, is quite certain to be futile.

Chapter Four

THE HISTORICAL PROBLEM

I

A BOOK is a physical artifact produced only in a civilized society. The implications of this truism include many historical aspects. Before an author can write he must have a language and a graphic system for recording it. Neither of these is his own invention. Both of them, as we have already remarked are no more than arbitrary conventions of culture; both have attained their forms as the result of a long evolution. In the same way the form of the book through the ages and the various methods of its fabrication are basic historical problems for library science. Here must be considered not merely the physical materials that have been used for the reception of graphic records but their reflexes in functional utility. Clay tablets, tanned skins, and papyrus, each presents a different combination of cheapness, portability and permanence. The slab, the roll, and the codex vary widely in their facilities for turning up a reference. The growth of such reader's aids as

cover-label, title-page, table of contents, pagination, and alphabetical index is a long evolutionary process. The history of book-illustration alone recapitulates the whole history of the technique of modern scholarship. The invention of a mechanical process for multiplying written records enabled Europe to produce in fifty years more books than had been manufactured in the preceding millennium. By the economics of modern distribution a country parson may now possess more volumes than Thomas Aquinas even saw in his lifetime. The cultural movements which are recorded in the history of the physical book have been determinative factors in the trend of civilization.

The development of the library as an institution is also an essential chapter in library science. Each age has formed its collections of graphic records to conform to its intellectual habits. From the simple equipment of a mediaeval monastery, limited to the needs prescribed by its rule, through the meagre collection of the early school, consisting only of texts required for the classroom, the modern free public library has been developed through a long series of transformations, each of which was conditioned in every detail by the state of coeval society. Every major change in the social ideal has produced an

alteration in the constitution of the library. In the latest mediaeval period as corporations of commoners took the place of feudal personages the *Rathaus* and the guild-hall aped the luxury of the former magnate: the commune acquired plate, art-treasures, and *books*. When the Reformation substituted truth for authority as the standard of orthodoxy the piety of the ecclesiastic was still measured by his assiduity in reading. But this was of a new sort: where his predecessor had been required to devote long daily hours to the perusal of a calendared breviary, the protestant minister was duty-bound to a life-long self-directed exploration of serious literature. His work-room became a book-lined study instead of a sacristy. With the rise of democratic ideals officials of every grade, from monarchs to petty incumbents, surrendered to communal ownership their inherited collections of books which their forebears had undoubtedly regarded as personal property. The rise of capitalism and the identification of social privilege with economic status, in the eighteenth century, is paralleled by the development of the proprietary joint-stock library company. Sentimental Victorian liberalism idealized itself as Lady Bountiful with the charity books of the Mechanics' Institute. In our own day from two poles of con-

temporary society radiate forces which crystallize libraries for free public use: baronial capitalists endow lavish foundations and self-appointed paternalists crusade for statutory establishments. Librarianship, as we know it, can be fully apprehended only through an understanding of its historic origins.

The American library, especially, bears many traces of the peculiar social forces by which it was created. In the minds of its active creators there was always a clear and rationalized belief that this social institution is so necessary an agent for public enlightenment that its support, like that of the schools, should be assumed by the state. The promulgation of reliable information to the electorate is a fundamental element in the modern theory of democracy. But along with this there was present an emotional response in the hearts of the American people, which supported any movement toward the establishment of a library system. This was that passion for books, simply as books, that seems to be an unconscious folk-memory of the literary starvation of the frontier. Just as the story of Lincoln's youthful study by the fire-light of a volume which he had trudged twenty miles to borrow is its mythical expression, so the fervent delight of a tiny community in its possession of

a public collection of books is the sentimental manifestation of a deep-seated social volition. American civilization feels an elemental craving for books which in its directness and simplicity sometimes fails to make any discrimination for quality. A village has been known to tax itself gladly to provide fourth-rate novels for the amusement of its members, where any proposal for communal support of music, drama, or art, would be derided as utopian. Thus it is not surprising that the library should reflect in its extreme form the complacent American toleration of the feminization of its culture.

Frequently the present status of an American library is hopelessly puzzling until one learns something of the personal elements that have entered into the structure. Under normal conditions our body politic is strangely indifferent to its own welfare. It is usually possible, in the resulting absence of any popular interest, for an opinionated individualist to dictate public policies according to his own wilful whims. The desires of a library founder and the bias of lay trustees often give a strange turn to what is avowedly a communal institution. More than one provincial metropolis possesses a public book-palace that is almost deserted because such persons, in the accident of their power, en-

deavor to attain a romantic cultural ideal: the finest library in their estimation is the library which is inherited by a landed English gentleman from a long line of university forebears; such a library whether people want it or not, their city shall have. Or, if the elder who finds himself elected to administrative authority is of a different temperament his decisions may be dictated by an obsolete literary standard: in his judgment no book of importance can have been written since the turn of the century; the library's program is accordingly limited to the exploitation of only such literature as meets these canons of quality. And so on. It would be possible for a student of library history to trace almost endless varieties of such personal factors which are constantly obtruding themselves in the causal train of institutional development.

A study of the particular forces which have determined any significant event in library history must obviously have a place in every scheme of professional science. But the knowledge that will result from such studies is clearly more a contribution to the intellectual well-being of librarianship than a prerequisite to its existence. There are, however, other matters, purely of a historical nature which are fundamental to the library's primary function. As we have al-

ready seen, the basic elements of librarianship consist in the accumulation of knowledge by society and its continuous transmission to the living generation so far as these processes are performed through the instrumentality of graphic records. Since every unit in the acquisition of knowledge, its reduction to writing, and its appropriation by the individual reader is a particular event, it is apparent that we have to deal here with historic phenomena. Of the various kinds of history that are involved some are already well established; others have been almost entirely neglected.

II

The first of these is the history of knowledge itself, if we may use this term in its widest possible significance. A two-fold division of this field is necessarily made according to whether the knowledge is predominantly aesthetic or predominantly factual. When it is aesthetic the corresponding historical study is the history of literature. This has been explored by many generations of scholars and its results enter into every school curriculum. Various lines of approach are followed. Some historians of literature are concerned only with the quality of aesthetic achievement. They throw the whole course of human

writing into an absolute present and compare the world's masterpieces as if they were contemporaneous. To these they devote their attention and endeavor to ascertain all that can be known of the circumstances of the origin of each literary masterpiece, the measure of its greatness, and the nature of its influence. Others who distrust the finality of a classic standard attempt to interpret literature only in terms of its own cultural antecedents. They regard human life as essentially a plant-like development. In their eyes the historian's task is to explain the structure from the cross section of his chosen period down to the roots that feed it. Still others conceive literature as an incidental aspect of a life that swells and slackens with the complex interplay of internal energies. To students of this temperament it is quite as important that a decadent period should produce inferior books as that a golden age should bring forth great ones.

Every librarian's conception of his duties will in part be determined by his allegiance to one or another of these schools of historical thought. If he holds the classic point of view he will regard as his highest contribution to social welfare the delivery of the world's best books to his readers. Or, since many of these readers will be unable to appreciate the highest excellence, he

can satisfy himself by giving them the best that they can understand. Moreover he will always hope that each individual will steadily advance toward the heights and that exercise and practice on these lower levels will create in him the vigor that will later enable him to scale the peaks. A librarian of this type will always have a profound faith that there is a group of books which can be named as the world's greatest literary monuments. Since the work of Edmund Spenser, for example, is, by universal consent, a preeminent classic of the English language, one purpose of the library, from this point of view, might be defined as that of persuading a maximum number of people to read the *Faery Queene*.

If, however, the librarian holds an evolutionary theory of literary history he will conceive the duty of his office in quite different terms. To him the value of any piece of literature will depend primarily upon its significance in the line of progress. Its excellence will be relative to the field in which it appears. Wherever circumstances require a librarian of this type to prescribe a course of reading he will probably prefer those books that were most influential in the historical development of literature. He may thus consider *Hudibras* more important than Spenser's poetry just as he will probably set an

inordinate value on modern books because in his emphasis on the idea of progress he will tend to regard them as a consummation of all that has gone before.

And finally the librarian who regards literature as an incidental and continuous function of civilization, will hold a third theory of his office. To him his task will be to exploit such books as are closest related to the intellectual state of the reader. Reading he is quite certain to define as a satisfaction of an interest already present in the mind. When he is asked about Spenser, he will probably more often suggest a book which describes Spenser's writing than an edition of the original text. The greatness of this poet, for him, is not his approach to absolute literary perfection, or his significance in the English development; it is rather his success in expressing the eternal human craving for that beauty which consists of a weaving together of sound, meaning, rhythm, and symbolism into a melody that seems somehow to exalt the quality of life. An uncritical reader will, in all probability, attain an understanding of these matters more easily from a book that explains them than he will from reading the verses himself.

The history of literature is concerned only with writings which have an aesthetic value.

These have been studied in such detail that for every national field not merely have the great books been voluminously discussed but, for some periods at least, very minor works of insignificant authors. At the same time, this study has extended its perspective to view the interrelations between different fields and even to trace the main tendencies of international literature of every language and of every period.

III

To a lesser degree the same thing has been done for books which record only factual knowledge. This is the history of science. But here only two historical theories have been used. Most writers on the subject hold a view that corresponds exactly with the classical attitude in pure literature: everything is oriented with reference to an absolute standard. This standard for factual knowledge is truth just as for aesthetic writings it is literary excellence. The historian of science working in this line excludes from his reckoning every fancied discovery that later investigation demonstrates to be erroneous, or at the most he mentions it only in passing. If he discusses at all the brilliant expounders of other men's theories, he tempers his praise by a disparagement of their lack in originality. Yet

though his primary interest is, as it were, with the eternal present of absolute truth, he always has a deeper consciousness of progressive development than the literary classicist usually possesses.

In contrast to this, other historians of science, somewhat fewer in number, hold a purely evolutionary theory of history. A false lead in the human quest for factual truth has the same interest for them that an extinct zoological species has for a paleontologist. They strive to understand how coeval conditions once made its existence inevitable, and how later changes wrought its destruction. From this point of view the atomism of Lucretius, the vital force imagined by Cuvier, or the faith of Victorian chemists in immutable elements have the same historical interest as any hypothesis that is still held to be valid.

But from either point of view the task of the history of science is adequately described by its name. Its concern is with the origin of that portion of the social memory which consists of observations, explanations, and evaluations in the realm of objective phenomena. Its primary purpose is to explain the existence of our factual knowledge. Again it is obvious that the librarian's practice will be determined in part by his

historical understanding. The books of fact that he puts into his library, the way he arranges and records them, and most of all the particular ones that he will recommend to his readers must all depend, to a certain measure, upon the way in which he believes they contribute to contemporary culture. It will make a great difference, therefore, whether he thinks of truth as an objective standard, or as the limit to which the approximations of science are gradually approaching.

In the main his historical interest will usually be focused on the more recent events in this field of knowledge. His first duty is not to demonstrate to his readers that the pronouncements of science are true, or even to assist them in making new discoveries of fact. He must serve primarily as an archivist of culture and aid his readers to find whatever they require so far as this has been put upon record. If, in the course of this duty, he can also serve for the moment as an informal teacher, he will deserve well of society. Whenever he can he will likewise be glad to assist an original investigator. But these are not his primary obligations. His main task is to collect for his community the graphic records of greatest importance for its social welfare and to exploit these to the greatest advantage by

the proper organization and administration of his office for this purpose. To do this intelligently he must make constant use of his knowledge of the history of science, particularly in its later development.

With the history of education the librarian has fewer contacts though this too is a subject which springs directly from the existence of a persistent social corpus of knowledge. From time to time the condition of the school may be reflected in library practice. This will usually be true of major events in the former field. Whenever a radical departure is made in the method or content of the scholastic curriculum, the problem of the library will be somewhat modified. On the one hand adults may attempt by reading to bring their experience with books into conformity of the new academic standards. At the same time members of the rising generation will come to the library with a new set of abilities and a new set of requirements. For example, within the memory of living librarians, the decline of Latin and Greek studies in the schools has reduced to minor importance a vast literature which formerly occupied a prominent place.

IV

There is, however, a fourth historical aspect of knowledge and its transmission which is of the

utmost significance for librarianship. This, in the absence of a better term, we must call the literary history of scholarship; although the phrase is open to certain objections. The word "scholarship" is coming to be used almost exclusively as meaning an advanced degree of learning. Its older significance as mere literary status, irrespective of its level, seems to be waning. Yet this is a phase in culture to which no other term is equally applicable. The idea may be expressed for a group of people by speaking of the "currency of ideas" among them, but no modification of this phrase will bring it down to the individual. Intellectual history is a term that has been preempted by the history of philosophy. Yet the quality of the phenomenon itself must be taken into account by librarianship.

The intellectual status of an adult cannot be described in terms of his scholastic experience alone. Individuals vary in the amount that they retain from their schooling. One person may remember a great deal of what he once learned in his lessons and yet make but little use of it in his mental life. Another, though perhaps he possesses far less as the effect of academic discipline, may weave what he has into the fabric of his intellectual activities. But even more than this much of the content of every adult mind has

been acquired outside of the classroom. All sorts of direct personal contacts as well as the indirect process of learning by reading have left a deposit. The total residual effect of an individual's intellectual experience may well be called his scholarship.

In respect to intelligence members of society show a wide variation. At one extreme is the illiterate provincial whose knowledge consists of traditional lore that is not true, and whose mental processes seldom go beyond the cognizance of a specific incident. At the other is the man of enormous learning whose mental alertness is commensurate with his knowledge. In comparison with the vitality and precision of his thought the mental movements of the ignoramus are like the fumbling of a lubberly child. Yet both states may be denominated as levels of scholarship.

In this sense the term will include phenomena which are all important for librarianship. The scholarship of a community will determine the character of its library. The scholarship of any particular social group will define the service which this library can render them. The scholarship of any individual will establish the possible range and quality of his reading. But the scholarly character of every one of these social units is a product of the events in their mental experi-

ence and these, of necessity, can be explained only as history.

The large part that is played by non-scholastic influences in the formation of popular scholarship is probably best demonstrated in a specific instance. During the past twenty years the upper section, at least, of the more literate American population has adopted a new type of scholarship in relation to many matters which are fundamental to their ideals of life. In particular, psychological theories have been completely incorporated in their habitual ideas and opinions. From such teachers as James, Münsterberg, and Thorndike they had already become convinced to a degree which previously had been attained only by specialists, that mental activity is related to the physiology of the nervous system. In a large part, perhaps, this awareness was a scholastic product, for the formal study of psychology was introduced in the higher curricula at an earlier period. But the second shift in popular psychological scholarship was not of this nature. During the second decade of the century books and papers by Sigmund Freud and his disciples were published in enormous numbers and widely read. In the main the theory of psycho-analysis was never accepted by academic orthodoxy. The schools contributed but very

little to the propaganda. Though now the movement has already waned its residual effect remains as a powerful factor. In America the extreme sexual theory of Freud seems to be generally rejected, yet his secondary opinions have been absorbed into contemporary American scholarship. Most people can no longer think in terms which contradict certain of the Freudian implications. They retain a whole-hearted belief that their opinions as well as their actions may be determined by unconscious motives. They are convinced that frustrated desires disguise themselves to secure symbolic fulfillments. They interpret temperament by such ideas: the term "inferiority complex" has won a currency that is almost universal. All this has been so completely integrated to the modern mentality that it has already affected the character of much of our art and our literature. Whole segments of current intellectual life are unintelligible except by a Freudian understanding.

This complete transformation of popular scholarship in relation to psychological theory has been paralleled by equally revolutionary movements in other fields. Few men of today could accept in many details their grandfathers' opinions in the realms of religion, politics, and ethical conduct. These changes have not come

to pass because of any primary alteration of academic instruction. They are the product of less tangible forces which were originally released through the instrumentality of printed books. But this is not peculiar to latter-day life. When the theory of evolution was new, it likewise was taken up throughout Western Europe by a generation which came too late to learn of it in their school books. In a similar fashion at an earlier period English-speaking peoples adopted a new theory of social justice which led to the abolition of slavery, just as, before this, the American colonists by their development of the popular scholarship of political organization had impelled themselves to establish their independence. Even the Protestant Reformation was in part actuated by the shift in public ideas and opinion, produced in six decades by the invention of printing. Ever since the press was first established, it has been possible for some of the original thinkers of each generation to inject their ideas directly into the main stream of the social current. Indeed, it is probably this alone that gives to modern culture its peculiar susceptibility to new opinions. Organized social institutions are notoriously conservative and tenacious of traditional standards. If popular scholarship could be reached only through the school, the

church, and the rostrum, the mind of civilization would probably be much more slow to move than it now is. As things are, the economic organization of the press itself sets a premium on intellectual novelty. The innovator has today an access to the mind of society to a degree that was never previously possible.

All this, of course, must have a definite meaning for the librarian. He must not think of his people as simply so many continuation pupils who should carry on their studies, by the aid of the library, from the point where the school has left them. The normal adult is much more than this. He is above all else a member of his community. His intellectual life has been completely socialized and he participates in what other men are thinking. Whether he reads many of them or not he is profoundly influenced by the potent writers of his period.

These, somewhat curiously, are not very often the masters themselves. Not many of the great books that establish new epochs in literature or in knowledge ever gain a wide popularity. Their influence upon men's minds is almost invariably through intermediate agents. Men of lesser originality are the more successful in exposition. For a thought to become socially active it must be formulated in terms that are current. A mind so

independent that it can break through the barriers of ordinary opinion and discover new truths is usually equally original in its modes of expression. Books of real originality are seldom easy reading. Men of discernment who are also observers of convention must always comprehend the innovating ideas and restate them with pedagogical skill before a community can understand them. This is a continuous process. In the main the permanent elements of any culture can appear actively in the form of a popular scholarship only as each generation has had them expounded by writers of its own period. This is what gives social value to most books when they are first written. It is a fallacy to assume that the ceaseless restatement of established facts, ideas, and opinions is an unnecessary and futile activity. Each generation, even each decade in a civilization that changes as rapidly as our own, must rewrite the record of its inherited culture if the transmission to a multitude of living individuals is to continue. The ordinary book of twenty years ago is now more obsolete and alien to our mental habit than was one two centuries old to the reader in the later mediaeval period.

Thus it comes about that the library must make so much use of the short-lived work of

writers who are lacking in any original talent. To regard such men as second-rate because they only restate, instead of creating, is to lose sight of their social importance. They belong for a little while to the foremost rank as bearers of intellectual contagions. It is the duty of the librarian to exploit the vitality of such work while it is still living. To do this he must observe with the impartiality of a historian each major movement in contemporary scholarship. His task will differ from those of the other historians of literary production. He is not concerned with literature as literature or with knowledge as knowledge. His primary interest is in the current use that is made of these in his own time and in his own community. The library value of a book is determined by its real popularity, the quality and the amount of its influence on the intellectual life of the people who use it.

As a student of these two historical disciplines, the history of pure literature and the literary history of scholarship, the librarian makes use of a certain technical process that is peculiarly his own. This is the special method of bibliography. Through the course of reading generations a system has been evolved for recording in brief form some of the more essential characteristics of any book. The usefulness of the technical conven-

tions involved is not to be questioned. They have been tested and proved by universal experience. But unfortunately very little consideration has been given to the principles which give them their value. As is usual in professional library discussion, an exclusive pragmatic interest has prevented the development of a corresponding theory. Attention has been concentrated on process instead of on function. A bibliographer invariably knows exactly how to do his work but only too often he has little clear understanding of why he is doing it.

Formal bibliography seems to bear the same relation to the history of books that chronology does to the history of any other social activity. It is a bare, simplified summary of certain important facts and it is fully justified by its convenience and its utility. But if it is ever mistaken as having a worth in itself, it not merely loses its value but becomes positively harmful. The event and not the record of it is what has significance for humanity. Merely to enumerate books and describe them may be a mental activity, but it is not, in the ordinary sense of this term, intellectual. A shorthand must always be expanded before it becomes intelligible. The bibliographical records of a library are only an inven-

tory to its contents. Unless the librarian has a clear historical consciousness of what these abridged entries stand for, he is quite certain at times to serve his community badly.

Chapter Five

PRACTICAL CONSIDERATIONS

TO RAISE the question of practical values with a man whose whole life is voluntarily devoted to a professional activity usually seems to him dangerously close to sacrilege. It does not always contribute to the amenities of the occasion to remark to an artist, a musician, or a philosopher that the social value of his labor is a matter for question. Even to note appreciatively that certain aspects of it are worth while will probably offend him by the implication that anything about it is not. The scientist also has a similar attitude. To him any extension of systematized human knowledge is its own justification. Yet a layman in the privacy of his own mind finds this question of utility a matter not without interest. We may therefore be justified if, in this general discussion of library science, we turn our attention, for the moment, to consider some of the possible benefits which may be expected to result from the development.

I

A professional philosophy would give to librarianship that directness of action which can spring only from a complete consciousness of purpose. Certainly it will make a great difference for communal welfare whether this public agency is conceived as a necessary and normal social element, or as a supererogatory benefaction to fortunate individuals. By the one view the service will be rendered as an obvious duty, by the other it may easily degenerate to bureaucratic favoritism. It will make a great difference for library extension whether the proposed institution is considered an essential part in the machinery of public education or as provision for certain incidental elegancies of life. The one opinion will inspire immediate action at public cost, the other will defer to the chances of private munificence. It will make a great difference whether the librarian is regarded as a public official, or merely the holder of a desirable position. By the one theory he must be selected for his professional education, experience, and efficiency, by the other it may be for pity or personal obligation. It will make a great difference to the young man hesitating in the choice of his career whether he believes that librarianship is a profession or an occupation. It will make an equal

difference in the quality of his training whether the school looks upon his future activity as the administration of a public trust or as the correct supervision of a routine procedure. And so the tale might easily be continued, but, after all, it should require no long argument to convince anyone who will consider this matter seriously that an understanding of the social theory of the library will contribute to its successful administration.

Perhaps the practical value of exact psychological knowledge will be less apparent. It may be said plausibly that since every librarian has himself been a reader, his remembered experience should be a sufficient guide for an understanding of the perplexities of others. Yet this certainly is not true in other but similar matters. To have been a pupil does not qualify one as a teacher. A long and varied experience of the benefits and abuses in political life does not of itself produce the statesman. While a reader reads, his attention is held by the book. He seldom observes himself during the process.

But even more than this, each individual's taste in reading, his motive, his method, and his profit are peculiarly his own. They are the compounded result of himself and his intellectual experience. To use these as a norm for evaluating

the abilities, needs, ideals, and desires of another is almost as foolish as it would be to judge his physical state by one's own sense of well-being. Any man who sees in society only the endless duplication of his own personality usually lives a life of perpetual intellectual turmoil. He quarrels with his fellows ceaselessly for not doing as he does. He ascribes their departures from his standards to stupidity or perverseness. He cannot conceive that they are true to themselves just because they differ from him in their thought and in their actions. Until he can imagine himself acting differently if he and his past had been different, no one can attain a sympathetic understanding of humanity. An imagination of this sort is impossible unless one has observed, without prepossession, the actions of others.

For so personal a matter as reading these considerations assume an overwhelming importance. The library is no mission station for the promulgation of an established literary gospel that is eternally true. The librarian's duty is not to entice men, against their wills if it need be, to convert themselves to his way of thinking. He is merely society's custodian of its cultural archives. The responsibility which he assumes with his office is to exploit those archives for

communal advantage to the utmost extent of his ability. Therefore, a major phase of the library's service to any individual reader will be to assist him to an effective method for achieving his own private purpose, so long as this is not anti-social, and to safeguard him from losing his labor in activities which are futile with reference to his own immediate desire. For all this there must be a sympathetic understanding of that individual's motive and mental ability. Effective librarianship is largely a matter of accurate psychological diagnosis.

Of much the same fashion is the librarian's office with respect to the books in his custody. His effectiveness in exploiting them for communal benefit will depend on his knowledge of what they are. Yet it is clearly impossible for any individual to learn of the contents of very many works by reading them through. In the course of a year the most assiduous reader can seldom peruse more than two hundred volumes. A whole life-time at this rate will be insufficient to establish a personal acquaintance with ten thousand books. Against this the world's literature has been computed to embrace some eight and a half million separate writings. The librarian, in his professional capacity, must endeavor to learn about books rather than to know them directly.

His basic study is bibliographical history. This consists, as we have seen, of the separate histories of literature, of science, and of their combined effectiveness in the current system of scholarship. Furthermore it is obvious that his profit from these studies will depend very largely upon his skill in reading the tabulations of formal bibliography as a shorthand of history. The librarian must be learned not merely in specialized sociology and psychology, but also in a particular type of historical science.

II

The development of library science may be expected to do more for professional practice than even the undoubted benefits which will accrue from a clear definition of the professional motives. It will establish that theoretical framework without which no deliberate extension of knowledge is possible. Modern man's acceptance of science is characterized by two distinct phases: He believes that the knowledge which he has is of the utmost usefulness; he is likewise possessed of an optimism that it can be increased, with the same rate of value, almost indefinitely. He may carp at the apparent futility of particular investigations but his faith in research, as such, is unshaken. Yet in spite of the

strength of these convictions he usually has a conception of the scientific methods of exploration which is hopelessly mistaken. One may suspect in turning over the pages of almost any library journal that the recurrent demand for research in librarianship involves only too often a presumption that nothing will be required for this except time and industry. In reality there is no such thing as scientific research until a theoretical hypothesis has been formulated. Chemists do not make random mixtures to see what will happen. Biologists do not thrust under their microscopes the first living organism at hand. Educators do not rush to the nearest classroom or sociologists to the nearest jail. Before there can be scientific observation there must be intellectual consideration. Chronologically experiment comes after hypothesis, not before it.

There are many factors in the present state of scientific studies which obscure the real nature of science itself. The most potent perhaps is that in the multitude of activities popularly called scientific so conspicuous a part is taken by what are merely pedagogical techniques. For every laboratory that is devoted to research there are hundreds which serve no other purpose than to establish in students a direct knowledge of phenomena and the habit of scientific procedure.

To a lesser degree this is also true of many of the investigations which are carried out by candidates for the higher academic degrees. The student himself is still too ignorant of the field to discover a serious problem; his teacher is usually so harassed by the same need in each of his long series of pupils that his imagination cannot produce one on the spur of the moment. Indeed, in some fields that have long been worked it is almost impossible to discover a reasonable dissertation subject that has not already been used. And, after all, the interests of both the candidate and his director is concentrated on the question of method. It is therefore neither surprising nor deplorable that much of the output of this kind of research should be superficial, a mere collection of obvious facts discussed with every possible pomposity of scientific manipulation and technical jargon.

Fortunately science does not depend upon this sort of thing for its sustenance. It continues its progress in spite of, rather than by virtue of, the multitude of its votaries. Only those may assist in the process who conceive their quest with reference to its general significance, and for this an intellectual theory is prerequisite. But unfortunately, to the neophyte and the layman what is most conspicuous is found most impres-

sive. Because vast numbers of those who are studying science are busily engaged in counting and weighing and measuring the details of things as they are, it would seem that to open a new field of research all that is necessary is to commence in that area also these same operations. Yet the obstinate fact remains that before even observation can become scientific there must be a science, at least in the form of hypotheses. This is most eminently true of librarianship. There can be no search until the searcher has decided what he shall look for. And this must have a scientific importance.

III

A third probable benefit which may be expected to result from the development of library science will be the way in which it will distinguish between the various professional activities. Formerly such a distinction was unknown in librarianship. That this is no longer true has come about largely through pragmatic distinctions rather than the development of theory and principles. It may therefore not be amiss to recall what was once the ordinary state of the profession. A layman can perhaps gain no clearer insight into the confusion which has prevailed in certain areas of librarianship than by picturing

to himself what the medical field would be like if no distinction were made between the physician, the nurse, and the hospital orderly. No one of these conceives himself as capable of performing successfully the duties of the other two. Even the physician, whose preparation has been most arduous, though he must understand the work performed on the two other levels, usually knows that he will be clumsy and inefficient if he attempts to perform it. There was a time, however, when library appointments and promotions were commonly made with almost no consideration of professional knowledge, and with very little regard to intelligence and personality. More than once a successful candidate has been known to offer no other qualification than his unfitness for any other academic employment. No distinction was usually made between professional, technical, and clerical levels, though the difference is patent. A professional library worker must possess a scientific, generalized knowledge which will enable him to discover the complex library needs of a mixed community. His primary concern is with the social effect of the institution. The technical library worker must have been vocationally trained to control the apparatus of the library for an effective realization of its prescribed purpose. His concern is

internal institutional efficiency. The clerical library worker needs operative skill for performing a particular process. His concern is with the operations performed at his desk. Some individuals are so talented that they can move safely from the narrowest field to the broadest with no other guidance than the self education that comes from an intelligent consideration of experience, but such persons are altogether exceptional. Yet at present no real distinction is always made between these various levels. Professionals are still recruited at times from the ranks of the technologists. This is somewhat as though we had no surer method for producing physicians than appointing our more talented nurses to the office.

In the case of medicine the professional science makes the gradation according to ability and talent. This is not merely a matter of the duration of training. Medical science itself has attained a stage where mere industry and submissiveness to instruction will no longer insure its apprehension. It must be understood and this is beyond the ability of the lower grades of intelligence. The intellectual quality of the science required for authority to practice has served as a barrier to keep out most of those who lack a certain degree of mental talent. As a re-

sult it would seem that in our present state of social confusion and futility, the medical profession has been singularly fortunate. There are probably fewer physicians conspicuously unfitted for their office in proportion to their total number than in any other learned profession. The bad doctor is more probably wicked than stupid.

Librarianship may not hope to develop in the immediate future a professional science equally effective for selecting from its recruits those who are really intellectually competent for the professional guidance of the library. But it may expect, at least, to become more nearly able to do this successfully than it has been in the past. And, certainly, when it has generalized and systematized its professional knowledge it will for the first time be able to distinguish between those who are fitted to carry on effective investigations and those who clearly are not. An ability to count and even that of computing a probable error are not the only qualifications which will be required if the more pressing problems of librarianship are to be solved.

IV

Still another possible benefit and the last to be considered in our present discussion is that of

creating for librarianship a sense of professional unity. Here again some progress has been made and the lack of organization is not so great as it was formerly. But this movement, unfortunately, has been a pragmatic quest for specific improvement rather than the adoption of a clearly conceived principle. As things are even now a national program seems seldom to get beyond a consideration of units. The library is conceived primarily as administering its service to individual readers just as communal needs are measured in terms of separate institutions. In the same way the necessity of coordination with other educational agencies is usually thought of only as a series of voluntary individual actions. The intensity of institutional loyalty that marks the ordinary librarian is astonishing. In a large community served by many libraries the absence of cooperation and their ignorance of each other leads to a distressingly costly duplication of equipment and of operations. Apparently but few population areas have yet been seriously considered as fields for possible unified library service. The conception that the separate institutions might become constituent elements of an organized system which would pool their books and assign various specialized duties is, as yet, a dream of Utopia. Certainly none of these things

will be possible until librarianship turns its attention from process to function. When it does this it will perceive its phenomena in terms of a library science.

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